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FINAL REPORT ON PHASE II OF THE SUBSURFACE INVESTIGATION AT TANKS 19T AND 20T AT THE C6 FACILITY REVISED 10 MAY 1988

Woodward-Clyde Consultants



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Project No. 8741863D

TABLE OF CONTENTS

1.0	INTRODUCTION	1
2.0	OBJECTIVE	1
3.0	DESCRIPTION OF THE FIELD PROGRAM	2
4.0	RESULTS 4.1 Ground Water Elevations 4.2 Ground Water Gradient 4.3 Well WCC-5 Location 4.4 Analytical Results of Wells WCC-1, 2, 3, 4, and 5 4.5 Depth of Penetration of Petroleum Hydrocarbons	4 5 5
5.0	conclusions	8
	LIST OF FIGURES	
1 2 3	C6 Facility Location Map	1
	LIST OF TABLES	
1 2 3 4 5	Ground Water Elevation Data	
	LIST OF APPENDICES	
A B C		

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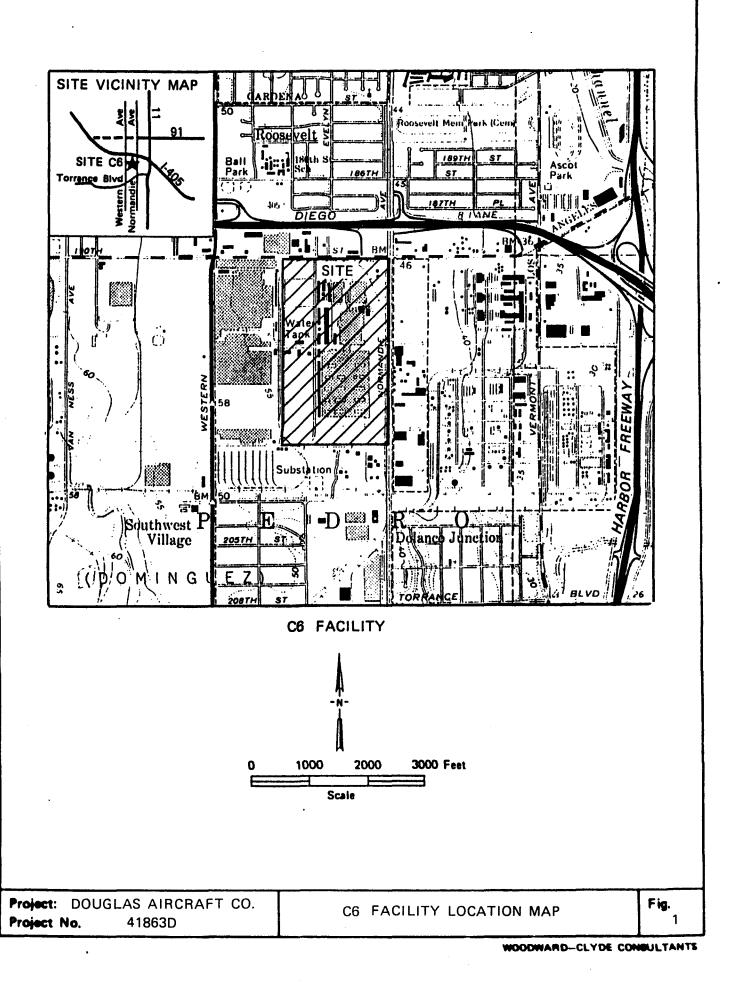
1.0 INTRODUCTION

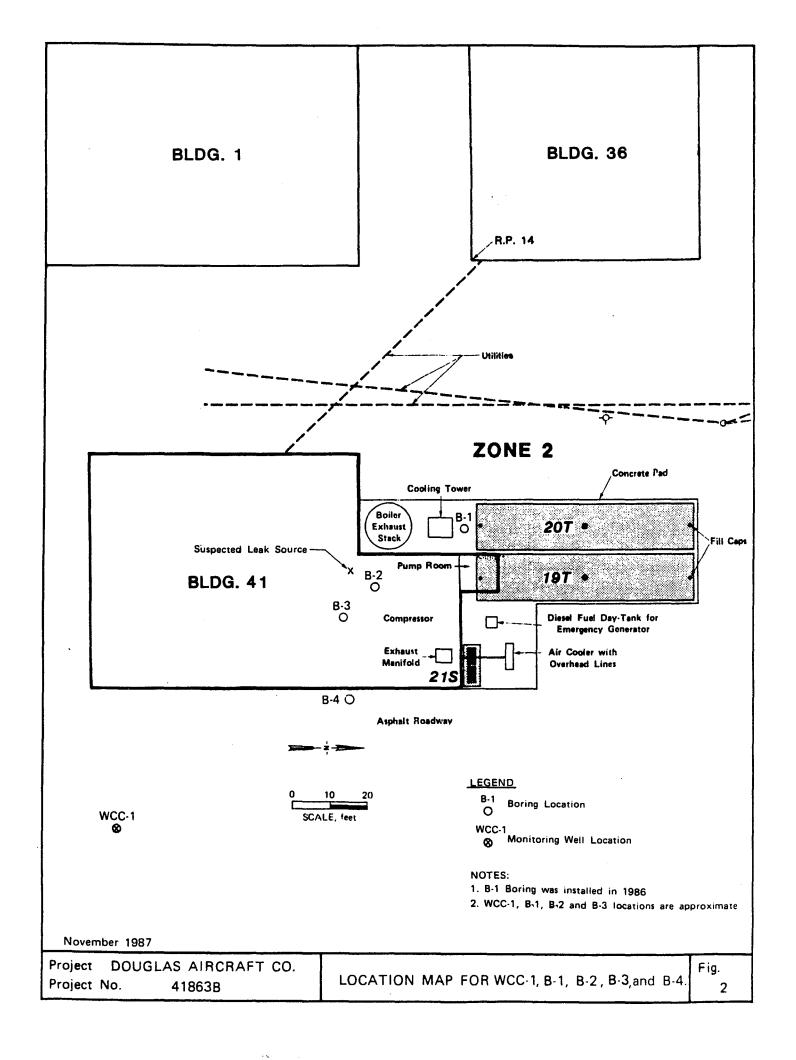
This report presents the results of Woodward-Clyde Consultants' Phase II subsurface investigation. This investigation was performed to evaluate the source of elevated concentrations of organic compounds in the soil and ground water near tanks 19T and 20T at Douglas Aircraft Company's C6 facility in Los Angeles, California. The location of the facility is shown on Figure 1.

The results of the Phase I Underground Investigation Report (June 1987) indicated the presence of petroleum hydrocarbons in the soil to a depth of 50 feet in the vicinity of tanks 19T 20T. In and 1,1-dichloroethene, 1,1,1-trichloroethane, trichloroethene, and benzene was detected in water samples collected from observation Well WCC-1, which was installed at a location thought to be downgradient of the tanks. The locations of borings and wells installed during the Phase I work are shown on Figure 2.

2.0 OBJECTIVE

The objective of this phase of the investigation was to evaluate the source of organic compounds in the soil and ground water near tanks 19T and 20T.





3.0 DESCRIPTION OF THE FIELD PROGRAM

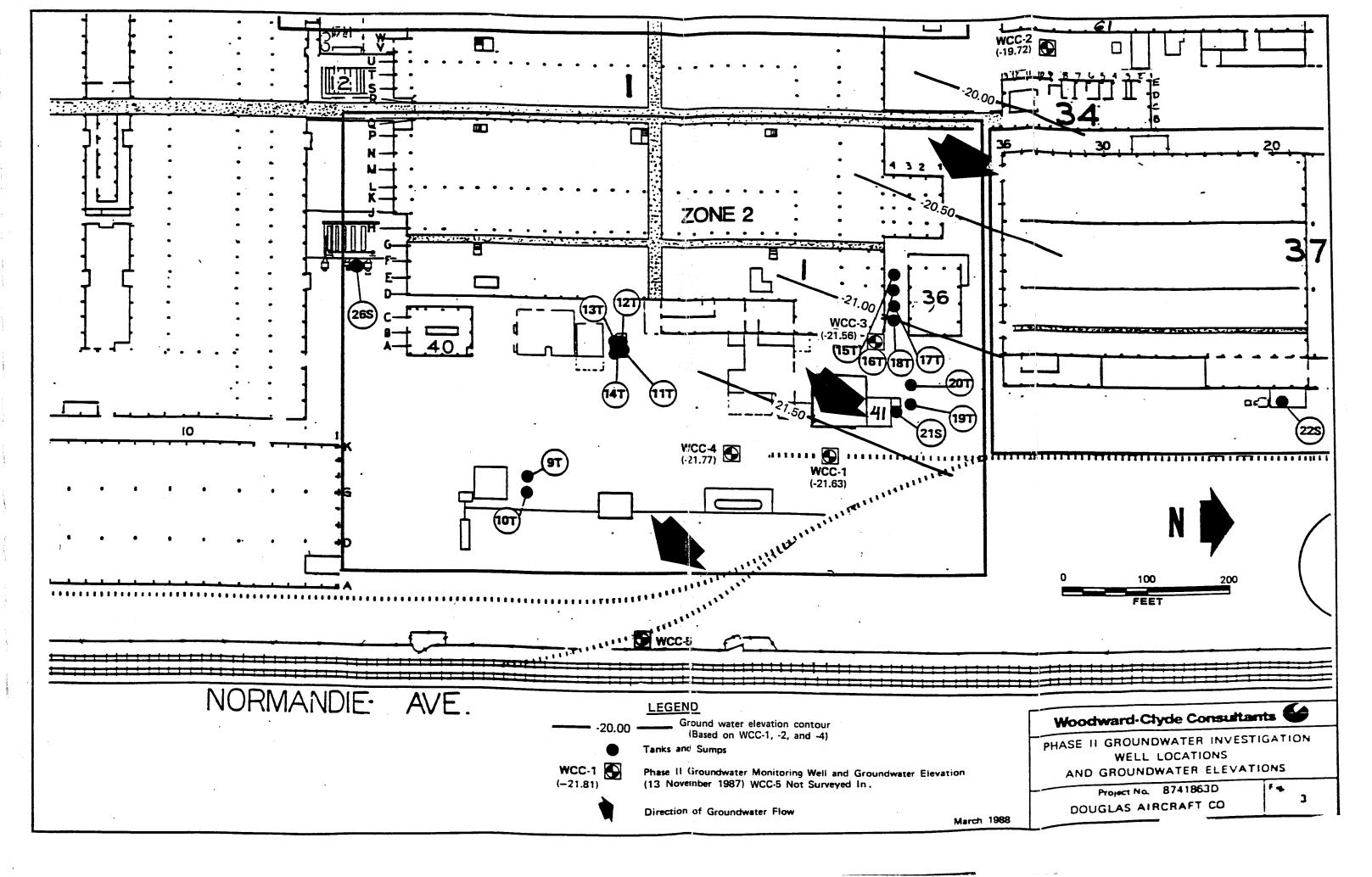
Phase II of the investigation was performed in the following manner. Four additional observation wells (WCC-2, WCC-3, WCC-4, and WCC-5) were installed approximately 90 to 91 feet in depth at the locations shown on Figure 3. An angle boring (B-4) was installed east of Building 41, see Figure 2. Details on the field procedures used during the installation of the wells are presented in Appendix A.

Well WCC-1 is located approximately 40 feet due east of Building 41, and was installed on 25 March 1987. Well WCC-1 is downgradient with respect to the location of tank clusters 19T, 20T, and 15T to 18T (see Figure 3).

Well WCC-2 is situated between buildings 61 and 34 and was installed on 28 October 1987. This well is considered to be the upgradient ground water observation well relative to the two tank clusters, and is approximately 400 feet northwest of tank cluster 15T to 18T.

Well WCC-3 is located at the northeast corner of Building 1, between the diesel tank clusters 19T, 20T, and the solvent tank cluster 15T to 18T. This well is also downgradient of solvent tanks 15T and 18T. Well WCC-3 was installed on 26 October 1987.

Well WCC-4 is approximately 100 feet southeast of Building 41, and is downgradient of tank clusters 19T, 20T, and 15T to 18T. This well (WCC-4) was installed on 27 October 1987.



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Well WCC-5 is located along the eastern property line of the Torrance (C6) facility and was installed on 24 November 1987. This well is considered to be a downgradient well, approximately 500 feet southeast of tank cluster 15T to 18T.

Boring B-4 was installed on May 26, 1987 by A & R Drilling Company (see Figure 2). This boring was installed to allow further evaluation of the vertical extent of petroleum hydrocarbons in the subsurface near tanks 19T and 20T. Borings B-1, B-2, and B-3 were installed during an earlier phase (Phase I) of this investigation. The analytical data obtained from soil samples collected from Borings B-1, B-2, and B-3 indicated that petroleum hydrocarbons were present to a depth of approximately 50 feet. The purpose of Boring B-4 was to evaluate how far the hydrocarbons had penetrated depth. below this 50-foot Boring B-4 was installed approximately 30 feet away from the suspected source of the release, and was slant drilled outside of the building at an angle of 26 degrees from vertical, in a westerly direction. This boring had to be installed outside the building because space restrictions prevented the use of a large drill rig inside the building. The boring was terminated at a vertical depth of about 54 feet.

Observation wells WCC-2, -3, and -4 were installed prior to WCC-5. The reason for installing wells WCC-2, -3, and -4 was to evaluate the lateral extent of organic compounds in the ground water and the gradient of ground water flow. Well WCC-5 was installed downgradient to evaluate whether organic compounds present in the ground water had reached the eastern site boundary. The placement of WCC-5 was based on the direction of the ground water gradient obtained from wells WCC-1, -2, -3, and -4. Well logs from observation wells WCC-1, -2, -3, -4, and -5 and Boring Logs for B-1, -2, -3, and -4 are presented in Appendix B.

On 30 October 1987, wells WCC-2, -3, and -4 were developed by Beylick Drilling Company of La Habra, California. Well WCC-5 was developed on 30 November 1987 by the same company. The observation wells were developed by a surge block and sand bailer method, and pumped with a submersible pump until the extracted water was free of visible suspended material. Water samples were collected and analyzed for volatile organics (EPA Method 8240) and petroleum hydrocarbons (EPA Method 8015). The well development and water sampling methods used are discussed in Appendix A.

Ground surface elevations of observation wells WCC-1, -2, -3, and -4 were surveyed on 3 November 1987 by Rattray and Associates, Inc. of Santa Ana, California. Observation well WCC-5 was installed on 24 November 1987 and was not surveyed. The survey provided the ground water elevation data required to evaluate the direction of the ground water gradient. The elevations of the well casings and ground water are summarized in Table 1.

4.0 RESULTS

4.1 Ground Water Elevations

Ground water elevation data collected on 13 November 1987 indicated that in the area defined by wells WCC-1, -2, -3, and -4, the elevation of ground water varies from -19.72 to -21.77 feet (Mean Sea Level [MSL]). These elevations indicate that the water table is over 19 feet below MSL. Water levels from wells completed in deeper aquifers in the vicinity of the site are also below MSL. Water level information from 1983 indicates that the water levels in these deeper aquifers are at approximately -60 feet MSL (Los Angeles Flood Control District). The low ground water levels found in the deep aquifers can be attributed to the

TABLE 1

TORRANCE C6 FACILITY
OBSERVATION WELL AND GROUNDWATER ELEVATIONS

WELL NO.	Date	Top of Casing		Depth to Water (ft)	Groundwater Elevation (MSL)
WCC-1	13-Nov-87	50.70		72.33	-21.63
WCC-2	13-Nov-87	50.59		70.31	-19.72
WCC-3	13-Nov-87	51.19	11	72.75	-21.56
WCC-4	13-Nov-87	49.69		71.46	-21.77

NOTE: Survey Conducted By Rattray And Associates, Inc. Santa Ana, California.

reduced natural ground water recharge caused by urbanization of the Los Angeles Basin and the heavy use of ground water. Channelizing the Los Angeles and San Gabriel rivers also has significantly reduced recharge to the ground water system. The reduced recharge and heavy ground water extraction have produced a ground water overdraft and a subsequent lowering of the water table. The ground water levels in the semi-perched aquifer beneath the facility are probably being influenced by the same factors as the deeper aquifers, resulting in a ground water elevation below MSL.

4.2 Ground Water Gradient

The ground water gradient calculated from ground water elevations taken 13 November 1987 indicated a gradient sloping from the northwest to the southeast. The direction of ground water flow is illustrated on Figure 3. This ground water gradient was calculated through the use of gradient triangulation between wells WCC-1, -2, -3, and -4. The ground water gradient illustrated in Figure 3 is based on data from wells WCC-1, -2, -3, and -4, and may not reflect ground water gradients at other locations at the C6 facility.

4.3 Well WCC-5 Location

The southeast gradient of ground water (discussed in Section 4.2) allowed observation Well WCC-5 to be located along the property line, downgradient of the tank clusters. The location of WCC-5 is shown on Figure 3. The location was selected based on the ground water gradient established from observation wells WCC-1, -2, -3, and -4, and assumes that hydrogeologic conditions are not significantly different in the proposed location of Well WCC-5. This observation well was installed, developed, and sampled in the same manner as wells WCC-1, -2, -3, and -4.

4.4 Analytical Results of Wells WCC-1, 2, 3, 4, and 5

Water samples were collected from observation Well WCC-1 on 27 March, 13 April, and 12 November 1987. Water samples were collected from WCC-2, -3, and -4 on 2 November and 12 November 1987. Observation Well WCC-5 was sampled on 30 November 1987 and 8 January 1988. The samples were analyzed for volatile organic compounds (EPA Method 8240) and petroleum hydrocarbons (EPA Method 8015) by West Coast Analytical Service, Inc. in Santa Fe Springs, California. Analytical results for the ground water samples are summarized in Table 2.

These analytical results show that the highest concentrations of organic compounds were found in the collected from Well WCC-3, immediately downgradient of the tank cluster 15T to 18T. Total volatile organic compound concentrations ranged from 292 to 365 parts-per-million The concentrations decrease as the downgradient distance from this area increases. Total volatile organic concentrations in WCC-1 ranged from 7,785 to 9,570 and in WCC-4 from 1,078 to 1,925 parts-per-billion (ppb). lower readings obtained from WCC-4, as compared to WCC-1, may indicate that WCC-4 is closer to the edge of the plume than WCC-1. Well WCC-2, the upgradient well, and WCC-5, the perimeter well, had very low concentrations of 1,1-DCE, 1,1,1-TCA, and TCE with total concentrations ranging from 7 to 30 ppb. Petroleum hydrocarbons were not detected in the water samples when analyzed by modified EPA Method 8015. These results indicate that the source of the organic compounds in the ground water was not the release from tanks 19T and 20T.

Soil samples were collected at depths of approximately 45, 55, 65, 75, and 80 feet from well locations WCC-2, -3, and -4 and at 45, 55, 65, and 75 feet from WCC-5. These soil

TABLE 2 GROUND WATER ANALYTICAL DATA Concentrations (ug/l)

		WCC-1		WCC	:-2	WC	C-3	WC	C-4	WCC	5
COMPOUNDS	3/27/87	4/13/87*	11/12/87	11/2/87	11/12/87	11/2/87	11/12/87	11/2/87	11/12/87	11/30/87	1/8/88
1,1-Dichloroethene (1,1-DCE)	2,800	3,700/2,500	3,000	5	2	38,000	88,000	360	1,200	7	4
1,1-Dichloroethane (1,1-DCA)		/	23				1,000				
1,1,1-Trichloroethane (1,1,1-TCA)	300	260/120	160	5		110,000	54,000	14	35		
Trichloroethene (TCE)	4,600	5,500/3,600	5,200	14	4	10,000	11,000	700	690	1	10
4-Methyl-2-pentanone (MIBK)		/				54,000	70,000				
trans-1,2-dichloroethene (trans-1,2-DCE)		/	7 5				1,000	2			
Chloroform		/	39					2			
Toluene		/		6	1	80,000	140,000		••	1	
Benzene	85	110/	160								
Detection level (ug/l)	50	50/50	20	1	1	1,000	1,000	1	10	1	1

(L-ABC/D-Table 2)

Duplicate sample also analyzedNot detected

samples were collected for Organic Vapor Analyzer (OVA) possible field headspace measurements and laboratory analysis. Refer to Appendix A for sampling methodology. Elevated OVA headspace readings and chemical odors were noted during the drilling of Well WCC-3. OVA measurements and their observed depths were recorded on the Boring Logs presented in Appendix B. The presence of odors and elevated OVA readings were not observed at wells WCC-1, WCC-2, WCC-4, and WCC-5. The 55 and 65 foot depth soil samples from Well WCC-3 were analyzed for the presence of volatile organics 8240). Concentrations of 1,1-dichloroethane (EPA Method 1,1-dichloroethene (methylene chloride), (1,1-DCE), 4-methyl-2-pentanone (MIBK), 1,1,1-trichloroethane (1,1,1-TCA), and toluene were found in the soil samples ranging from 8 to 590 ug/kg (ppb). Soil analytical results for WCC-3 are summarized in Table 3.

As a part of the underground tank management program at the C6 facility, soil borings were installed next to tanks and sumps to identify past or current leakage of chemicals from these storage units. Two borings were installed on August 1987, adjacent to tanks 15T and 17T. Elevated OVA headspace readings were found in both soil borings. indicated the presence of analytical results compounds in the soil next to the tanks. Soil samples from the boring next to Tank 15T (15TB) contained a variety of compounds in the parts-per-million (ppm) range, including some of those found in the ground water (1,1,1-TCA, MIBK, TCE, and toluene). Samples from the boring next to Tank 17T (17TB) contained only MIBK in the ppm range from the variety of compounds found in the ground water.

Boring Logs for tanks 15T and 17T are presented in Appendix B. Analytical results obtained from soil samples collected

TABLE 3
ANALYTICAL RESULTS FROM WCC-3 SOIL SAMPLES
ug/kg (ppb)

Sample No.	Sample Depth (feet)	1,1,-Dichloroethene (1,1-DCE)	1,1-Dichloroethane (1,1-DCA)	1,1,1-Trichloroethane (1,1,1-TCA)	Toluene	4-methyl-2-pentanone (MIBK)
MW-3-2-3	55	. 53	98	70	590	ND
MW-3-3-3	65	ND	ND	ND	8	310
Detection Limit		5	5	5	5	30

ND - not detected

from these borings are summarized in Table 4. Laboratory analytical results for water and soil samples, and copies of the chain-of-custody forms are presented in Appendix C.

4.5 Depth of Penetration of Petroleum Hydrocarbons

Boring B-4 was installed on 26 May 1987, and was terminated at a vertical depth of approximately 54 feet (slant depth of 60.5 feet, see Figure 2). The analysis of samples collected from the boring showed that the concentration of petroleum hydrocarbons decreased from 16,000 mg/kg to below detection between a depth of 50 and 54 feet. Table 5 summarizes the analytical data. Data from this boring indicated that the petroleum hydrocarbons have penetrated to a depth of approximately 50 feet.

5.0 CONCLUSIONS

Observation wells WCC-2, -3, -4, and -5 were installed to depths of approximately 90 to 91 feet at the Torrance (C6) facility. Soil borings B1, B2, B3, and B4 were installed to depths ranging from 31 to 54 feet, adjacent to tanks 19T and 20T. Data obtained from these wells and borings indicate the following:

- 1. The ground water gradient in the area under investigation slopes from the northwest to southeast (see Figure 3).
- 2. During installation of Well WCC-3, elevated OVA headspace readings and chemical odors were observed at depths from 55 to 90 feet. Low concentrations of organic compounds were detected in two soil samples analyzed from this boring. These low concentrations indicate that the compounds are probably present in the soil at this location, as a result of diffusion of the compounds from the source(s) in the soil and/or ground water as opposed to a direct release.

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TABLE 4

ANALYTICAL RESULTS FROM SOIL BORINGS 15TB AND 17TB (ug/g) ppm

Sample No.	Sample Depth	1,1-DCE	TCÉ	2-Butanone (MEK)	1,1,1-TCA	Toluene	Ethylbenzene	Total Xylenes	4 Methyl-2- Pentanone (MIBK
15TB-3-3	10	<1	ND	ND	<1	<1	<1	<1	ND
15TB-4-3	15	ND	10	160	27	870	41	460	ND
15TB-5-3	20	ND	94	1,800	38	6,300	180	1,300	ND
17тв-2-3	5	ND	ND	ND	ND	ND	ND	ND	ND
1718-3-3	10	ND	ND	ND	<1	<1	ND	ND	ND
17TB-5-3	20	ND	ND	ND	<1	<1	ND	ND	ND
17TB-7-3	30	ND	ND	810	ND	ND	ND	ND	840
Detection Limit									

Note:

ND - Not Detected

Borings 15TB and 17TB were installed on 24 August 1987. Boring logs and analytical data sheets are presented in Woodward-Clyde Consultants report, "Phase III Drilling Program at the Torrance (C6) Facility" dated 15 December 1987.

TABLE 5

ANALYTICAL RESULTS FROM BORING B-4

Sample Depth (ft)	Petroleum Hydrocarbons (mg/kg)
13	ND
18	15,000
22	44,000
27	8,200
31	28,000
36	6,000
40	1,500
44	
49	16,000
54	ND
Detection Limit	10

⁻⁻ Not analyzed ND Not Detected

- 3. Analytical results obtained from water samples collected from wells WCC-1, -2, -3, -4, and -5 do not indicate the presence of petroleum hydrocarbons other than benzene and toluene. However, halogenated hydrocarbons were found in all of the water samples. The distribution of concentrations appear to indicate a primary source of these compounds near tank cluster 15T through 18T. These tanks and associated piping tested tight during the tank testing program in 1986.
- 4. Ground water elevations from the shallow semi-perched aquifer ranged from -19.72 to -21.77 feet Mean Sea Level. The negative ground water elevations indicate that the ground water is below sea level.
- 5. Data obtained from observation wells and Boring B-4 indicate that the piping at tanks 19T and 20T is not the source of the organic compounds in the ground water. The area near tank cluster 15T through 18T appears to be a more likely source. In addition, the petroleum hydrocarbons do not appear to have penetrated greater than 50 feet below the surface, and are confined to the area of Building 41.
- 6. Water samples from Well WCC-2, the upgradient well, and WCC-5, the perimeter well, had very similar, low concentrations of volatile organic compounds. This may indicate that ground water entering the site contains low levels of organic compounds. The installation of another upgradient perimeter well would be necessary to further evaluate if this condition exists.

APPENDIX A

FIELD PROCEDURES AND METHODOLOGY

(ABC/DAPPA)

APPENDIX A FIELD PROCEDURES AND METHODOLOGY

A.1 GENERAL INFORMATION

Drilling was performed by A & R Drilling, Inc. of Carson, California. Drilling began on 26 October 1987 and was completed on 24 November 1987. Observation wells were drilled using a CME 75 with 7-inch outside diameter (0.D.) and 10-inch O.D. hollow stem augers.

A.1.1 Observation Well Installation

Observation wells WCC-2, -3, -4, and -5 were constructed of 4-inch, Schedule 40 PVC and set to a depth of about 90 to 91 feet. The observation wells were installed by drilling a 90-foot deep pilot hole with the 7-inch O.D. hollow stem augers used for soil sampling. Upon removal of the 7-inch hollow stem auger from the hole, 10-inch O.D. hollow stem augers were used to ream the pilot hole to a 10-inch diameter. A wooden plug was placed in the lead cutting auger to prevent cuttings and water from entering the inside of the auger. Municipal water was added to the inside of augers as drilling progressed through the water table to offset the hydrostatic pressure of the fine grained flowing sands outside the augers. Two attempts were made to install Well WCC-3 without the use of water, but the bottom 3 to 5 feet of the auger "sanded-in" immediately after knocking out the wooden plug. The "sanding-in" of the augers prevented the wells from being properly constructed. Water had to be used for proper construction of WCC-2, -3, -4, and -5. The amounts of city water used at each well was noted on the well log forms and samples of city water were collected for possible laboratory analysis.

A.1.2 Well Construction

The observation wells were constructed of 4-inch 0.D. Schedule 40 PVC flush-threaded blank pipe, and screened with .010-inch slot. Adhesives were not used. Wells were installed with 70 feet of blank casing and 20 feet of screen. The well screen was filter packed using a 1-1/4 inch diameter tremie pipe, to reduce the possibility of sand bridging inside the augers. A filter pack material of Monterey #0/30 sand was selected, based on a field sieve analysis. Filter pack analysis is discussed in Section A.4. The filter pack was placed from the well bottom to about 5 feet above the top of the well screen from 65 to 90 feet.

A five-foot thick bentonite pellet plug was placed above the filter pack, at depths from about 60 to 65 feet, to minimize movement of fluids through the annular space. In addition, bentonite grout was placed at depths from approximately 8 to 60 feet below ground surface. A concrete plug was placed from approximately 8 feet to the surface, to minimize seepage of surface fluids into the well. The top of the well casings were completed 3 to 6 inches below grade and protected with a steel traffic-rated Christy box. Appendix B presents the Boring Logs and graphic well construction details.

A.1.3 <u>Drilling Residuals</u>

Drill cuttings from each boring were placed in DOT Class 17H 55-gallon drums. The contents of the drums were labeled using an identification label and permanent ink marker. The drums were sealed and left adjacent to the boring locations.

Douglas Aircraft was advised of the locations and contents of the drums, and the need for proper management of the drill cuttings.

A.1.4 <u>Decontamination</u>

Augers and drilling equipment were steam cleaned between borings and wells to minimize the possibility of cross-contamination. The modified California soil sampler and brass tubes were cleaned as follows:

- o Deionized water wash to remove mud and soil;
- o Deionized water with Liquinox detergent;
- o Deionized water rinse to remove detergent;
- o Deionized water rinse; and
- o Dried with paper towel.

A.2 SOIL SAMPLING

Subsurface soil samples were collected at approximately 45, 55, 65, 75, and 80 feet below ground surface. Soil samples were collected for Organic Vapor Analyzer (OVA) headspace measurements, and for laboratory analyses. Soil samples were collected using a California modified sampler. The California modified sampler holds four brass tubes, and is 18 inches in length. Soil sample depths and OVA headspace measurements are shown on the Boring Logs in Appendix B.

A.2.1 OVA Headspace Measurements

Field OVA headspace measurements were taken from one of the soil samples collected at each sampling depth. This procedure was conducted by extruding the contents of one brass tube into a one pint glass jar. The jar's lid has a

1/4-inch diameter hole, which was sealed with duct tape. Approximately 10 minutes was allowed for organic vapors from the soil to reach equilibrium inside the jar. An OVA probe was then inserted through the hole in the jar, and the vapor concentration was measured (in ppm).

A.2.2 Soil Sample Preparation

One to two tubes from the soil sampler were prepared for laboratory analysis. The ends of the tubes were covered with aluminum foil, plastic end caps, and sealed with electrical tape. Soil samples were labeled with the following information:

- o Project number
- o Project name
- o Boring number
- o Sample number
- o Soil depth
- o Date
- o Person collecting sample

The soil samples were then sealed in Ziploc plastic bags and placed on ice in an ice chest. All soil samples were delivered to West Coast Analytical Service, Inc. in Santa Fe Springs for analysis. Chain-of-custody procedures, includidentification the of sample labels and chain-of-custody forms, were used for tracking the collection and shipment of soil samples. Copies of the chain-of-custody forms are presented in Appendix C.

A.3 FIELD OBSERVATIONS

Observations made by Woodward-Clyde Consultants personnel during the drilling and sampling operations were recorded on Boring Logs, as presented in Appendix B. These observations related to visual soil classifications, geologic and stratigraphic comments, observation well construction details, sampling efforts, OVA measurements, and other pertinent information.

A.4 FILTER PACK ANALYSIS

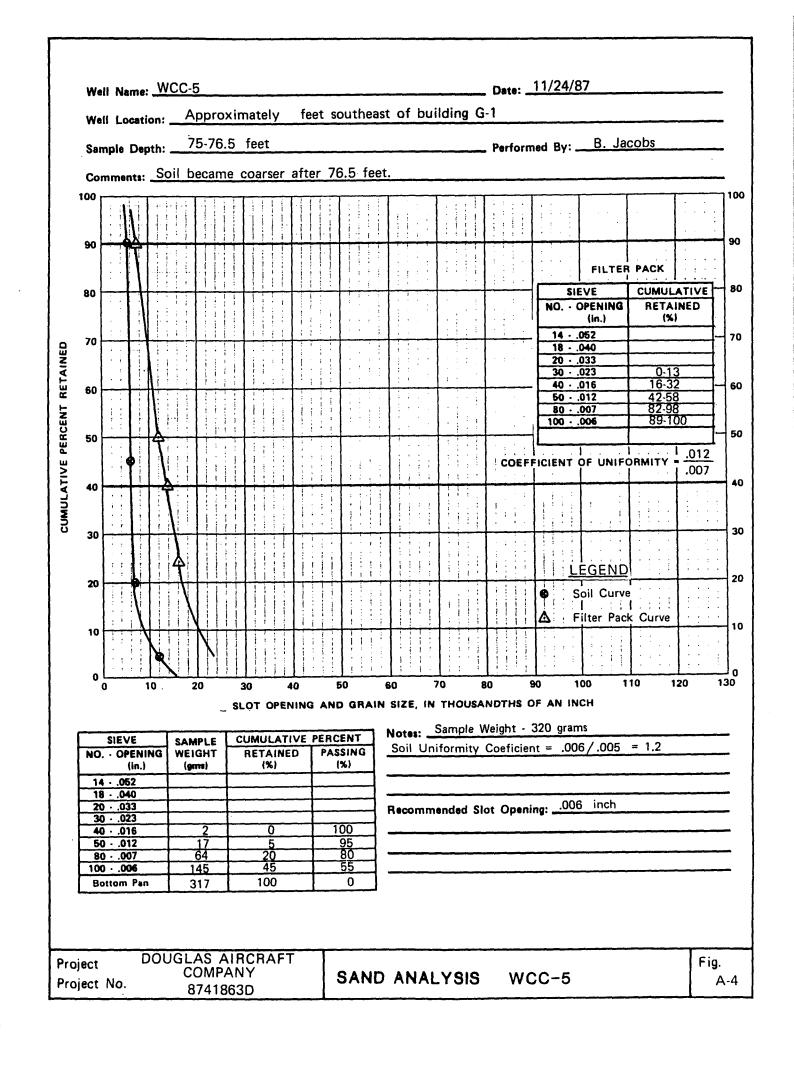
Selection of the proper filter pack material and well screen slot size is essential in collecting a sediment-free or low sediment content water sample. In observation wells WCC-2, -3, -4, and -5 soil samples were collected from 75 or 80 feet below grade for sieve analysis. Filter pack design calculations were made based on the grain size distribution obtained from these soil samples.

Soil analyses were conducted in the field by collecting a soil sample from below the water table with a California modified sampler. The soil sample was heated with a portable propane stove to evaporate all water from the soil. When the sample was dried, it was weighed on a scale to the nearest gram. The soil sample was then poured into the top of eight sieves and shaken for approximately 5 minutes. The sieve sizes used in the analysis are shown in Figure A-1. The cumulative percent of the soil sample retained in each sieve was weighed and plotted on a sand analysis curve. It is the sand analysis curve that graphically characterizes the grain size distribution of the soil. Sand analysis curves for wells WCC-2, -3, -4, and -5 are illustrated in Figures A-1, A-2, A-3, and A-4, respectively.

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30	0 · .023 0 · .016	13 25	4 8	96 92	Recommended SI	ot Opening:	.oro men	
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															Performed By: B. Jacobs											
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0	0 10	20		30	4	0		50		6	0		70)	- 1	80		90	1	10	00	1	10	1:	20	_
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80)007)006	212 226	#		75 80			25 20	_	-																_
	ttom Pan	278	土		99			1		-				*****							<u> </u>					-



Calculation of the filter pack size was performed by multiplying the 50 percent retained size of the formation sample by 2 (Johnson 1986). This value was plotted on the sand analysis curve. Through this point on the filter pack curve, a smooth curve was drawn representing material with a uniformity coefficient of 2 to 3. The uniformity coefficient was calculated by dividing the 40 percent retained value by the 90 percent value, as shown in the equation below.

Uniformity Coefficient (U.C.) =
$$\frac{U.C.40}{U.C.90}$$

This filter pack curve defined the ideal filter pack required to prevent the entrance of fine silts, sands and clays into the observation wells. A ready made filter pack material was then selected that best matched the calculated filter pack curve, since custom made filter pack materials were not readily available. The sand analysis curves for wells WCC-2, -3, -4, and -5 were similar and the soils were classified as fine-grained sands. The filter pack selected for the three observation wells was a Monterey #0/30 sand. The sand analysis curve for Monterey #0/30 is shown on Figure A-4. A screen slot size of .010 inch (10 slot) was chosen to retain 95 percent of the selected filter pack.

A.5 WELL DEVELOPMENT AND WATER SAMPLING

Observation wells WCC-2, -3, and -4 were developed on 30 October 1987 by Beylick Drilling Company of La Habra, California. Beylick Drilling Company also developed WCC-5 on 30 November 1987. The wells were developed by a sand bailer and surge block method for 45 to 60 minutes and then pumped with a submersible pump. Wells WCC-3 and WCC-4 had

165 gallons of water removed during development. Well WCC-2 had 225 gallons removed during development. Well WCC-5 had 300 gallons removed during development. Table A-1 presents the development times and the ground water volumes removed.

The last 50 to 185 gallons removed from the four observation wells was observed to be sediment free.

Water removed from the wells during development was contained and sealed in DOT Class 17E 55-gallon drums adjacent to the wells. The drums were labeled for contents, date, and well number, and Douglas Aircraft's contact employee (Mr. Don Gerber).

Observation wells WCC-2, 3, and 4 were sampled on 2 November 1987. Well WCC-5 was sampled on 30 November 1987 and 8 January 1988. Each observation well had a minimum of three well casing volumes removed before a ground water sample was collected. Electrical Conductivity (EC) and temperature was recorded from each five gallons of ground water removed from the well. Stabilized EC and temperature values indicated that ground water from the aquifer formation was being extracted from the well. Table A-2 presents EC, temperature, and ground water volume data recorded during water sampling. The water removed from the wells is being stored on-site prior to disposal.

Observation wells were bailed with a 3-1/2 inch diameter PVC bailer. This bailer was washed with Liquinox detergent and rinsed with deionized water between usage in each well. The PVC bailer was only used for well volume removal and was not used for water sampling. After a minimum of three well volumes had been removed, and EC and temperature stabilized, a water sample was collected using a clean, 2-inch diameter

TABLE A-1
WELL DEVELOPMENT SUMMARY

Well No.	Sand Bailer and Surge Block Time (min)	Sand Bailer Volume Removed (gal	Pumping Time (min)	Pumping Volume Removed (gal)	Total Volume Removed (gal)	Comments
WCC-2	60	80	35	145	225	Water clear after pump- ing 90 gallons
wcc-3	45	15	40	150	165	Water clear after pump- ing 95 gallons
wcc-4	45	40	35	125	165	Water clear after pump- ing 75 gallons
WCC-5	60	30	55	270	300	Water clear after pump- ing 85 gallons

TABLE A-2
WATER SAMPLING ELECTRICAL CONDUCTIVITY AND TEMPERATURE DATA

Well No.	Sample Date	Sample Interval (gal)	Electrical Conductivity EC - umhos	Temperature C°	рН
WCC-2	11/2/87	0-5 5-10 10-15 15-20 20-25 25-30 30-35	750 1,000 1,000 1,000 1,000 1,000 1,000	22.5 22.5 22.5 22.5 22.5 22.5 22.5 22.5	NA NA NA NA NA NA
WCC-3	11/2/87	0-5 5-10 10-15 15-20 20-25 25-30 30-35	2,250 2,100 1,950 2,000 2,000 1,900 1,800	23.0 23.0 22.5 22.5 22.5 22.5 22.5	NA NA NA NA NA NA
WCC-4	11/2/87	0-5 5-10 10-15 15-20 20-25 25-30 30-35	1,000 1,050 1,050 1,050 1,050 1,050 1,050	25.0 22.5 22.5 22.5 22.5 22.5 22.5	NA NA NA NA NA
WCC-1	11/12/87	0-2.5 2.5-5.0 5.0-7.5 7.5-10.0	1,400 1,400 1,400 1,400	22.5 22.5 22.5 22.5	NA NA NA NA
wcc-2	11/12/87	0-5 5-10 10-15 15-20 20-25 25-30 30-35	700 700 700 700 710 710 710	22.0 22.0 22.0 22.0 22.0 22.0 22.0	NA NA NA NA NA NA
WCC-3	11/12/87	0-5 5-10 10-15 15-20 20-25 25-30 30-35	2,100 2,000 1,950 1,910 1,900 1,900 1,900	22.5 23.0 23.0 23.0 23.0 23.0 23.0	NA NA NA NA NA NA
WCC-4	11/12/87	0-5 5-10 10-15 15-20 20-25 25-30 30-35	1,200 1,200 1,150 1,050 1,050 1,100 1,000	22.5 22.5 22.5 22.5 22.5 22.5 22.5	NA NA NA NA NA NA

(L/ABC-DAC-A2)

Table A-2 (continued)

Well No.	Sample Date	Sample Interval (gal)	Electrical Conductivity EC - umhos	Temperature C°	рН
WCC-5*	11/30/80		NA	NA	NA
WCC-5	1/8/88	0-5 5-10 10-15 15-20 20-25 25-30 30-35 35-40	950 960 960 900 880 880 880 880	21.5 22.0 22.0 22.1 22.1 22.1 22.1 22.1 22.1	6.9 6.9 6.9 6.9 6.9 6.9

NOTE:

NA - Not Analyzed, pH meter inoperative.

WCC-5* - Water sample collected immediately after development of 300 gallons (23 well volumes) from well.

No measurements taken.

Teflon bailer. Each well was sampled with a different 2-inch bailer to minimize the potential for cross-contamination.

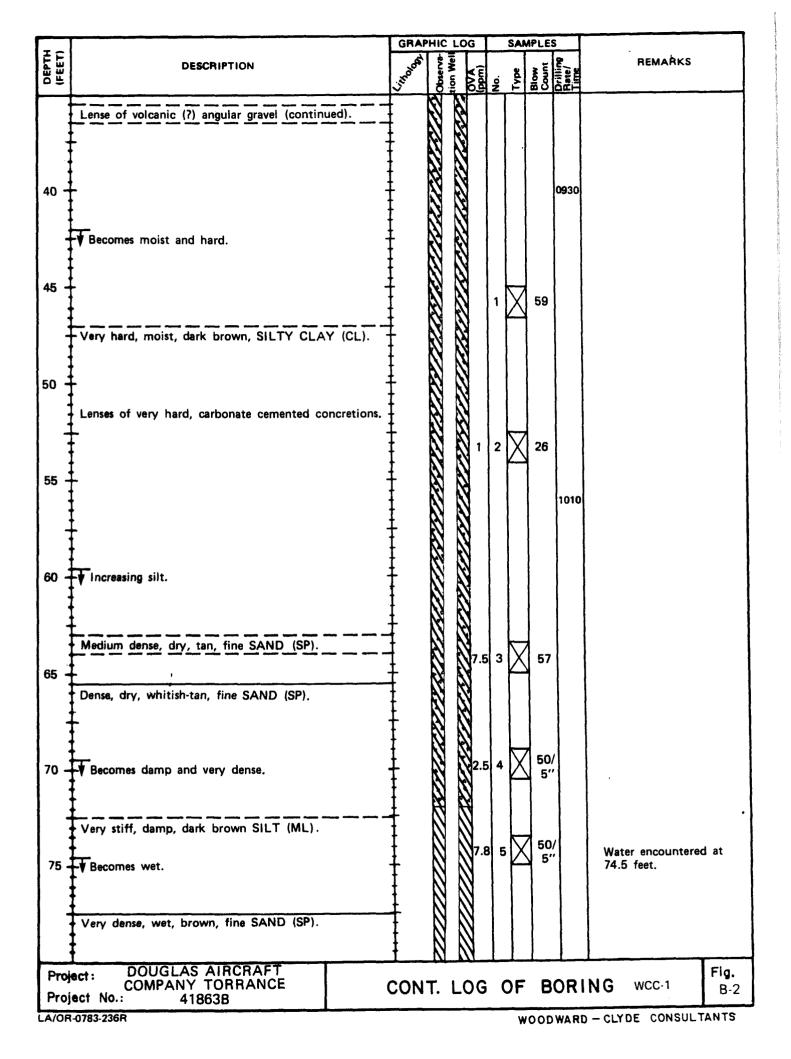
APPENDIX B

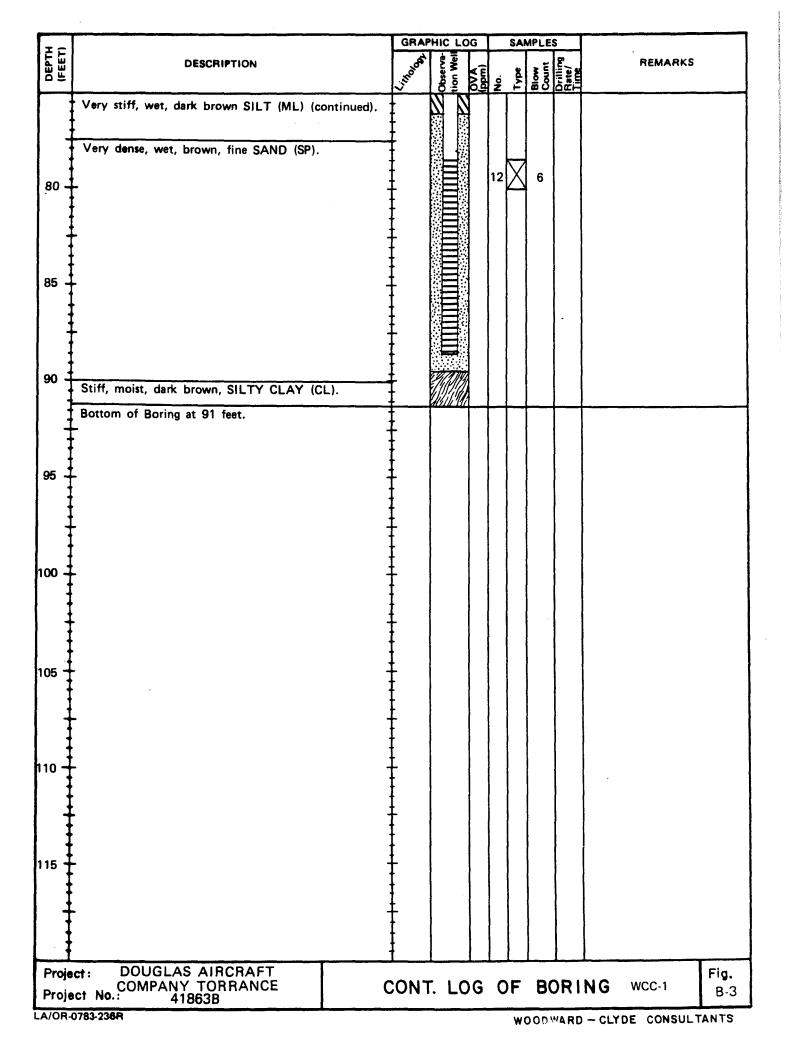
BORINGS LOGS

(ABC/DAPPA)

BORING LOCATI	DN				VATION D DATU	M			
DRILLIN AGENC DRILLIN	G PRILLER			딾	TE NRTED			DATE FINISHED	
EOUPE TYPE	MEN I			Œ	MPLETIC	<u> </u>		ROOK DEPTH (ft)	
	ASING PERFORATION	CORE		<u>B0</u>	METER RING (i POED B	<u></u>		DIAMETER OF WELL (In.) CHECKED BY	
NO DE LE	\$	24 HRS.		╀		•			
		WELL			SAMPL		•		
DEPTH (feet)	DESCRIPTION	roc	No.	Type	Blow	O.V.A. (ppm)	Orilling Rate (Time)	REMARKS	
	Medium dense, moist, light brown, SILTY fine grained SAND (SM).		\wedge						
	Unified Soil Classification System (USCS). —	<u></u>		V					
5	Sample Identification Number. Sample Location and Type.	1							ļ
	Concrete				Λ				
1	Bentonite Pellets	‡				Λ			
10	Native Soil	†					\wedge		
	Monterey No. 0/30 Sand Filter Pack	†						^	
15	Screen	<u> </u>							
1	Modified California Sampler.	‡ †							
20	Bentonite (Volclay) Grout	†						,	
	Number of State Back to the state state Back	†							
25	Number of Blows Required to Advance Sampl One Foot using a 140 Pound Downhole Hamn with a 30—inch Drop.	net							
	Organic Vapor Analyzer (OVA) Readings (field headspace).	-			:				
30	Rate at which Drilling Progresses. Time at depths noted.	-	-	H					
+	Remarks or Comments by Driller or Drilling Supervisor.	‡	<u> </u>						
35		<u> </u>							
		‡							
	ject: DOUGLAS AIRCRAFT COMPANY		KF	Y	TO	BOR	ING L	.OG	Fig.
	8741863D						WOO	OWARD-CLYDE CONSULTANT	

LOCA	NG WCC-1			ELE/	VATI	ON T	op of) Feet
DAIL	LING Detum Fundament IDRILLER	Jame	es	DAT	E OTEN	3-2	25-87		3-26-87
	Mobile Drill B-61, 10-inch O.D., H.S.A.			COM	PLE I	TION .	91	PATE FINISHED HOCK DEPTH(FT) (UNDIST_	_
DIAM	ELL CASING 2-inch Plastic, Flush Threaded	·			NO	LESI	ST . 5		COME_
TYPE	ORATION .02 Slot			W	ATE	1	AST 74	.5 COMPL _	24 HRS _
TYPE	OF No. 12 Silica Sand				GED			CHECKED	ΙÝ
TYPE PACK TYPE	OF Bentonite Pellet Plug and Bentonite Gro	out		1	S.	Donald	dson	В	Jacobs
SEAL		1			5	AMPLE	S		
DEPTH (FEET)	DESCRIPTION	Listrol of the	Observa- tion Well		ġ,	Lype Blow Count	Poilling Tage	REMA	RKS
	Asphalt	1	\vdash	Π			0905		und OVA
5 -	Damp, reddish-brown, SILTY SAND (SP) with clay and gravel. Becomes black Becomes reddish brown, no gravel.			MANAGERIA				reading	= 1-2 ppm
10-	▼ Becomes medium brown.	† † † †		MANN					
15	CLAYEY SAND (SC).	+					0915	,	
20 -									
25 -	Stiff, damp, medium brown, CLAYEY SILT (ML) with some fine sand.		Selection.	THE STATE OF THE S				·	
30 - 35 -	Becomes hard with more clay. Lense of volcanic (?) angular gravel.	+ + + + + + + + + + + + + + + + + + +	STATESTICS	THE STATES			0920		
	BOUGHAS ALBORAST	1	<u> </u>	77	1_1			<u></u>	12.
Proj Proj	ect: DOUGLAS AIRCRAFT COMPANY TORRANCE ect No.: 41863B		l	_OG	0	F B	ORI	NG wcc	Fig. B-1
	0783-235R					WOOT	WAR	-CLYDE CO	MSULTANTS





Continued Sandy Clay (CL). Less stiff, more moist. CME 75, 10—inch H.S.A. CME 75, 10—inch		casing @ 50.59 ft.			VATION DATU	ELE				See Figure 2		C-2	W)N	BORIN LOCAT
THE OSING 4" Sch. 40 PVC SCREM	37	DATE FINISHED 10-28-87			re Rted	DA ST/	th	1. Smi						Α δ	<i>'</i>	AGEN
SAMPLE STREET 73 COMPL 24 HRS 71.1 SAMPLE NFORMATION NFORE		DEPTH (ft)		<u>9</u>	APLETIC TH (ft)	DEF									JENT.	EQUIP
SAMPLE SUPPLY (H) FIRST 73 COMPL 24 HRS 71.1 DESCRIPTION DESCRIPTION Asphalt Medium stiff, very moist, dark yellowish brown, SANDY CLAY (CL). Color change to yellowish brown. Color change to yellowish brown. Color change to yellowish brown. Continued SANDY CLAY (CL). Less stiff, more moist.		WELL (in.) 4	10	.}	RING (in	BOI					SC PE	O PVC			F <u>Asing</u>	WELL
DESCRIPTION Asphalt Medium stiff, very moist, dark yellowish brown, was stiffer less moisture, SANDY CLAY (CL). Color change to yellowish brown. Becomes stiffer less moisture, SANDY CLAY (CL). Continued SANDY CLAY (CL). Grades to SILTY CLAY (CL). Medium stiff, very moist, olive brown, SILTY CLAY. Continued SANDY CLAY (CL). Medium stiff, very moist, olive brown, SILTY CLAY.	í		es			LX	-			J	- 1			1	5	No OF SAMPL
DESCRIPTION WELL INFORMATION Asphalt Medium stiff, very moist, dark yellowish brown. Medium stiff, very moist, dark yellowish brown. SANDY CLAY (CL). Becomes very dark grayish brown. Color change to yellowish brown. Stiffer less moisture, SANDY CLAY (CL). Continued SANDY CLAY (CL). Less stiff, more moist. Continued SANDY CLAY (CL). Less stiff, more moist. Continued SANDY CLAY (CL). Less stiff, more moist, olive brown, SILTY CLAY.			· · · · ·				.1	HRS. 71	'24 	MPL	,co	73	RST		(ft)	DEPTH
Asphalt Medium stiff, very moist, dark yellowish brown, Pand CLAY (CL). Becomes very dark grayish brown. Color change to yellowish brown. Becomes stiffer less moisture, SANDY CLAY (CL). Continued SANDY CLAY (CL). Less stiff, more moist. Continued SANDY CLAY (CL). Less stiff, more moist. Conditionated Sanday Clay (CL). Less stiff, more moist.	<u> </u>	REMARKS	Drilling Rate (Time)	0.V.A.	ORMA	INF	No.				ЛОП	ESCRIP	D			DEPTH (feet)
Continued SANDY CLAY (CL). Less stiff, more moist. 20 Grades to SILTY CLAY (CL). Medium stiff, very moist, olive brown, SILTY CLAY.			1308						omes	1 brown. brown. Become	-ayis wish	dark gi	((CL)	m stiff Y CLA ecome	Media SANI	10-
									·		′ (Ci	Y CLAY	oist. to SIL	nore m	Medi	20
			1323	i					-							25
35																
							1									
Project: DOUGLAS AIRCRAFT COMPANY	Fig.	F	1			لــــــــــــــــــــــــــــــــــــــ	1	KA KA	<u> </u>	COMPANY	FT	IRCP A	Δς /	MIGI	iaat	D-
LUG UF BURING WCC-Z	-	WCC-Z	ING	BOR	OF)G							~> F		•	1
Project No.: 8741863D BOODWARD-CLYDE CONSULTANTS	<u>-1-1</u>)	<u> 363</u>	8741		, O':	Ject	

Continued Stiff, moist, elive brown, SILTY CLAY (CL).	DEPTH (feet)	DESCRIPTION	WELL LOG	, oN	Туре	Blow Count	0.V.A. (ppm)	Drilling Rate (T.)	REMARKS	
SILTY SAND (SM), with shells. 1	40-	(continued) Stiff, moist, olive brown, SILTY CLAY (CL).								
Very dense, damp, strong brown, fine grained SAND (SP) to SILTY SAND (SM), iron oxide staining. 1423 Descornes SILTY SAND. Dense, maist, alive, fine grained SILTY SAND (SM), some iron oxide stains. 3 42 6 1433 4 8 6 1512 Water at 73 feet. Project: DOUGLAS AIRCRAFT COMPANY CONT. LOG OF BORING WCC-2 Fig.	45-	Dense, moist, olive brown, fine grained, SILTY SAND (SM), with shells.		1	X	34	5	1342		
Very dense, damp, strong brown, fine grained SAND (SP) to SILTY SAND (SM), iron oxide staining. Becomes SiLTY SAND. Becomes SiLTY SAND. Becomes wet. 75 Very dense, wet, olive brown, fine grained, SILTY SAND (SM). SILTY SAND (SM). Water at 73 feet. Project: DOUGLAS AIRCRAFT COMPANY CONT. LOG OF BORING WCC-2 Fig.	50-							1357		
Becomes SILTY SAND. 65 Dense, maist, alive, fine grained SILTY SAND (SM), some iron oxide stains. 70 Becomes wet. 75 Very dense, wet, alive brown, fine grained, SILTY SAND (SM). 80 Project: DOUGLAS AIRCRAFT COMPANY CONT. LOG OF BORING WCC-2 Fig.	55.	Very dense, damp, strong brown, fine grained SAND (SP) to SILTY SAND (SM).		2	X	60	5	1402		
Dense, moist, olive, fine grained SILTY SAND (SM), some iron oxide stains. 70 Becomes wet. 75 Very dense, wet, olive brown, fine grained, SILTY SAND (SM). Water at 73 feet. 4	60.	iron oxide staining.						1423	•	
Becomes wet. 75 Very dense, wet, olive brown, fine grained, SILTY SAND (SM). Project: DOUGLAS AIRCRAFT COMPANY CONT. LOG OF BORING WCC-2 Fig.	65	Dense, moist, olive, fine grained SILTY SAND		3	X	42	6	1433		
Very dense, wet, olive brown, fine grained, SILTY SAND (SM). 80 Project: DOUGLAS AIRCRAFT COMPANY CONT. LOG OF BORING WCC-2 Fig.	70	†						1500		
Project: DOUGLAS AIRCRAFT COMPANY CONT. LOG OF BORING WCC-2 Fig.	75	Very dense, wet, olive brown, fine grained,		4	X	68	6	1512	∑ Water at 7	3 feet.
CONT. LOG OF BORING WCC-2		‡ ‡						1544		
	1	alask Na	CONT	. L	OG	OF	BOR	ING	WCC-2	-

DEPTH (feet)	DESCRIPTION	WELL	ò	уре	Blow Count	0.V.A. (ppm)	Drilling Rate (T.)	REMARKS
85	(continued) Very dense, wet, olive, fine grained to very fine grained SILTY SAND (SM), micaceou with some clay interbedding and iron oxide staining.	s,	5		50/ 3"	5	1600	
90								
95	Bottom of Boring at 90.5 feet.							Note: 48 gallons of city water used to offset hydr static head of flowing sands during well installation.
100		+ + + + + + + + + + + + + + + + + + + +						
105		+++++++++++++++++++++++++++++++++++++++						
		+						
110		+ + + + + + + + + + + + + + + + + + + +						
115		† † † † † †						
120		 						
125		† † † †						
	ect: DOUGLAS AIRCRAFT COMPANY ect No.: 8741863D	CONT.	LC	G	OF	BORI	NG	WCC-2 Fig.
	8741863D						WOO	B-1-

ORING OCATI	WCC-3 See Figure 2			ĘĻ	EVATION ID DATU	, T	op of	Casing @ 51.19 ft.
RILLIN	G A & D Duilling Inc. DRILLER	M. Smi	th		TE ARTED		6-87	
RILLIN	G 0145 75 40 1 1 10 4			CC	MPLETIC	Ņ,	92	ROCK
YPE (0 Slot		DI.	AMETER PRING (i	OF	10	DIAMETER OF 4 WELL (in.)
OF AMPL	oistundist. 6 cc	ORE _	-	LC	IGGED 8	Υ		CHECKED BY
VATER DEPTH	(ft) FIRST 73.5 COMPL 22	HRS. 74	.0		 	H. Rey	es ———	B. Jacobs
DEPTH (feet)	DESCRIPTION	WELL	No.		Blow Count Count		Drilling Rate (Time)	REMARKS
5-	Asphalt Damp, very dark grayish brown, fine grained SILTY SAND (SM) with small gravel. Soft, very moist, dark gray to black SILTY CLAY (CL). Becomes less moist, dark yellowish brown, stiff.	44444444				!	0846	Background OVA reading = 4-6 ppm
10	Continued SILTY CLAY (CL). Becomes more stiff, no detectable odor.						0855	
20	Dense, moist, yellowish brown, CLAYEY SAND to SANDY CLAY (SC-CL). Grades to SILTY CLAY (CL). Stiff, moist, dark yellowish brown SILTY CLAY.							No odor.
30							0905	No odor.
Pro	ect: DOUGLAS AIRCRAFT COMPANY	- 1 K-	· · ·	\sim	~	חאחי	NIC	WCC 7 Fig.
	ect No.: 8741863D		LÜ	ľĠ	U٢	BORI	NG	$WCC-3 \qquad B-2-$
	07710000				•		woo	DWARD-CLYDE CONSULTANTS

DEPTH (feet)	DESCRIPTION	WELL LOG	No.	Туре	Blow Count	0.V.A. (ppm)	Drilling Rate (T.)	REMARKS
40	(continued) Stiff, moist, olive brown, SILTY CLAY (CL).						0921	
45	Lens of stiff, moist, alive, SANDY SILT (ML), micaceous with decomposed pieces of roots.		1	X	25	30	0924	Earthy odor.
50	Clay becomes more stiff, interbedded with lenses of dense, moist, yellowish brown,						0937	
55-	medium grained SILTY SAND (SM) with shells, partially cemented and crystalized calcite.		2	X	30	570	0945	Moderate chemical odor.
60-							1005	
65	Dense, moist, yellowish brown to olive gray, very fine grained SILTY SAND to SAND (SM-SP), micaceous.		3		46	440	1015	Easier drilling. Moderate to strong
								chemical odor. Very easy drilling.
70-	Very stiff, very moist, olive brown, SANDY SILT (ML), micaceous with iron oxide stains.		4	X	35	+1000	1035	Strong chemical odor.
75-	Becomes wet. Very dense, wet, olive brown fine grained SAND (SP) to SILTY SAND (SM).		5	X	59	+1000	1047	▼ Water at 73.5 feet. Strong chemical
80-	Becomes medium grained.		6	X	N.R	. +100	O 1112	odor.
	pject: DOUGLAS AIRCRAFT COMPANY	CONT	. L	ЭG	OF	BOR	ING	WCC-3 Fig. B-2-2
<u> </u>	8741863D						wo	ODWARD-CLYDE CONSULTANTS

DEPTH (feet)		WELL	No.	Туре	Blow	0.V.A. (ppm)	Drilling Rate (T.)	REMARKS
85	. (continued) - Very dense, saturated, olive brown, fine to - medium grained SAND (SP—SM) with some - silt						1205	Moderate to strong chemical odor.
90	· - - -						1545	
95	- Bottom of Boring at 92.0 feet.							Note: Used 59 gallons of city water to offset hydrostatic head of flowing sands during well installation.
100								
105		+ + + + + + + + + +						
110		+ + + + + + + + + + + + + + + + + + + +						
115		+ + + + + + + + + + + + + + + + + + + +						
120-		† † † † † † † † † † † † † † † † † † †						
125		† †						
1	ject: DOUGLAS AIRCRAFT COMPANY ject No.: 8741863D	CONT.	. LC)G	OF	BOR		$ \begin{array}{c c} WCC-3 & Fig. \\ B-2-3 \\ \hline ODWARD-CLYDE CONSULTANTS \end{array} $

BORING LOCAT DRILLIN	١G	Δ &		VCC- Drillin			Figu	re 2	M	Smít		ELE AN DA	EVATION D DATU TE ARTED	l _м To 10−2			sing @	49.69 0-27	
agenc	Y NG MENT					10-ii				JIIII	u I	CD	ARTED MPLETIC PTH (ft		91.5	F	INISHED I ROCK DEPTH (ft)	<u> </u>	-
TYPE (MENT OF CASING	4" S		40 P					10 5	Slot		DE	<u>PTH (ft</u> METER	OF	10		DEPTH (ft) DIAMETER OF WELL (in.)	4	
WELL (CASING	+ 3	ST.	40 F	- VC	SCREEN PERFORA UNDIST.			ORE	3100		BO LO	METER RING (ii GGED B	٦.)	10	- Y	WELL (in.) CHECKED BY		-
No OF SAMPL WATER	ES		RST			COMPL.	8		24 HRS	71		$-\Gamma$	ŀ	l. Rey	es			Jacob	s
WATER DEPTH	⟨ft⟩			75	2	1				71	.6						- · · · · · · · · · · · · · · · · · · ·		
DEPTH (feet)			[DESCI	RIPTI	ON				ELL .OG		INF	AMPL ORMA Conut		Drilling Rate (Time)		REM	ARKS	:
10	Moist,	grayis (CL).				CLAY S			->	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~						rec	okground ading = odor.		
20]																			
30-		angula	ir gro	ovel.		sh blaci													
Pro	ject: D(DUGL.	AS A	AIRCE	RAF	r com	PAN	Y			10	10	ΛE		NC	\ \ /	'CC_4		Fig.
	ject No				4186						L	JG	UF	BORI	NG	٧V	CC-4		B-3-1
				0/1	TIOC	,,,,,				_			····		WOO	DWAF	RD-CLYDE CO	NSULTAN	

DEPTH (feet)	DESCRIPTION	WELL LOG	No.	Туре	Blow Count	0.V.A. (ppm)	Drilling Rate (T.)	REMARKS
40								
45	. Very stiff, organic roots and plant detritus with orangish iron oxide staining.		1	X	18	8	1345	No odor.
50								
55			2	X	23	8	1350	No odor.
60	. Occasional fossiliferous gravel.							
65	Hard, light alive brown, fine SANDY SILT to SILTY fine SAND (SM).		3	X	43	5	1425	No odor.
70	·							
75	Hard, damp, light olive brown, SILTY CLAY (CL) with iron axide staining. Very dense, light olive brown, fine grained		4	X	42	7		∑ Water at 75 feet.
	SAND (SP) with little silt.		5	X	45	8	1530	No odor.
1	ject: DOUGLAS AIRCRAFT COMPANY ject No.: 8741863D	CONT.	LC)G	OF	BOR		WCC-4 Fig. B-3-2 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

DEPTH (feet)	DESCRIPTION	WELL LOG	, o	Туре	Blow Count	0.V.A. (ppm)	Orilling Rate (T.)	REMARKS
85-	(continued) Very dense, wet, light olive brown, fine grained SAND (SP) with little silt.							
90-	Moist, light olive brown, SILTY CLAY (ML—CL).		6	X	N.R.	8	1700	
95-	Bottom of Boring at 91.5 feet.	+						Note: 45 gallons of city water used to offset hydrostatic head of flowing sands during well instal—lation.
100-		† · · · · · · · · · · · · · · · · · · ·						
105		† † † † †						
110-		† † † † † †						
115-		† † † † †						
120-		1 1 1 1 1						
125		+						
	pject: DOUGLAS AIRCRAFT COMPANY pject No.: 8741863D	CONT	. L	OG	OF	BOR		WCC-4 Fig. B-3-3 ODWARD-CLYDE CONSULTANTS

BORING WCC-5 See	Figure 3		ELE	VATION DATU			N/A	
DRILLING AGENCY A & R Drilling, Inc.	DRILLER	TEXT	DA ST/	TE ARTED	11 - 24	-87	DATE 11-24-	-87
DRILLING EQUIPEMENT CME 75, 10 —	inch H.S.A	۹.	CDI	MPLETION PTH (ft)	N (91	ROCK — DEPTH (ft) —	
TYPE OF 4" PVC, SCH. 40 SCREEN PERFOR	Lone S	Star #01	130 Ba	METER (RING (in.	OF 1	10	DIAMETER OF 4 WELL (in.)	
No OF DIST UNDIST.	4 'C	ORE _		GED BY	r . Jacol	าร	CHECKED BY H. Reyes	
WATER FIRST 73 COMPL.	70 2	4 HRS.70.3	1/2					
DESCRIPTION DESCRIPTION		WELL	INF	SAMPLI Comut Comut		Drilling Rate (Time)	REMARKS	
Moist, dark olive brown, CLAYEY with little sand. Moist, moderate brown, SILTY CLAYEY with some sand.						1400	Background OVA reading = 3-4 ppm	
Becomes dark yellowish brown	٦.							
30								
			1		1			
Project: DOUGLAS AIRCRAFT CO	MPANY		_ 		D 0 D 1	NA	WCC E	Fig.
Desired Man			LUG	Ü٢	BORI	NG	WCC-5	B-4-1
Project No.: 8741863D						WOO	 NATUCIONOS DE CONSULTAN	

DEPTH (feet)	DESCRIPTION	WELL LOG	Š	Type	Blow Count	0.V.A. (ppm)	Drilling Rate (T.)	REMARKS
40	Moist, dark yellowish brown, SILTY CLAY (CL). (continued) with some organic roots and iron oxide staining.						1445	
45	Dense, moist, dusky yellow to light olive brown, fine grained, SAND (SP) with little silt.		1	X	34	3		No odor.
50-								
55-	Interbeds of Silty Sands and Clay.		2	X	37	5	1515	No odor.
60-								
65-	Becomes very dense.		3	X	70	4	1550	No odor.
70-	Becomes wet.							∑ Water at 73 feet.
75-	Dense, wet, moderate olive brown, fine graine SILTY SAND (SM-ML).	d, 1	4	X	35	3		No odor.
80-								
	ject: DOUGLAS AIRCRAFT COMPANY ject No.: 8741863D	CONT.	L()G	OF	BOR		WCC-5 Fig. B-4-2 DOWARD-CLYDE CONSULTANTS

DEPTH (feet)	DESCRIPTION	WELL LOG	No	Туре	Blow Count	0.V.A. (ppm)	Drilling Rate (T.)	REMARKS
85-	Dense, wet, moderate olive brown, fine grained SILTY SAND (SM-ML).							No sample collected
90	-							Augers sanding—in.
95	Bottom of Boring at 91 feet.	+						Note: 55 gallons of city water was used to aid well install—ation.
100		† + + + + + +] !					
105		+ + + + + + + + + + + + + + + + + + + +	i 					
110		+						
115		† † † † †						
120		† † † † † †						
125		† † † † † †						
i	ject: DOUGLAS AIRCRAFT COMPANY ject No.: 8741863D	CONT.	LC	III)G	OF	BORI		WCC-5 Fig. B-4-3 DWARD-CLYDE CONSULTANTS

A & R Drilling, Inc. Fill.LEM Romero Sharp R-24-87 Missing R-24-87 Mis	BORING See Location Map ELEVATION Not Available											
Marting Street	DRILLIN	G A & P Drilling Ing DRILLER M	A & R Drilling, Inc. DRILLER M. Romero STARTED 8-24-87									
### PROBADE TO THE PROPERTY OF	EQUIPE	MENT CIVIL 43, Q-INCH O.D., 11.3.A			DE	MPLETIC PTH (ft))		ROCK — DEPTH (ft)			
Asphalt covering Medium dense, domp, yellowish brown, SILTY fine to medium gridned SAND (SM), micaceous 4-inch CLAYEY layer near surface. (FILL) Loose, domp, yellowish brown, fine to medium gridned SAND (SP-SM), with some yellowish brown mixed in. Less silt, micaceous, (FILL). Tolor changing to gray with some yellowish brown mixed in. Less silt, micaceous (SP), (FILL) Stiff, moist, dive brown, CLAYEY SILT (ML), micaceous (SP), (FILL) Stiff, moist, dive brown, SANDY SILT (ML), micaceous (SP), (FILL) Stiff, moist, dive brown, SANDY SILT With some fine grained SAND (ML). Asphalt covering REMARKS REMARKS REMARKS REMARKS 2	WELL (OF N/A SCREEN NASING N/A PERFORATION N			80	METER RING (ir	OF 1.)	8	WELL (in.)			
DESCRIPTION Asphalt covering Medium dense, damp, yellowish brown, SILTY fine to medium grained SAND (SM), miloscoous 1 X 9 10 1230 Definite odor.	SAMPL	S 9			Lo			man				
DESCRIPTION WELL LOG SAMPLE REMARKS	WATER DEPTH	(ft) COMPL. '24	HRS	-	\perp		010001					
Asphalt covering. Medium dense, damp, yellowish brown, SILTY fine to medium grained SAND (SM), miacaceous, 4—inch CLAYET (John CLAYET (John CLAYET) (SILT) Loose, damp, yellowish brown, fine to medium grained SAND (SP-SM), with some SILT, 10 Color changing to gray with some yellowish brown mixed in. Less silt, micaceous, (FILL). Stiff, moist, olive brown, CLAYEY SILT 15 Stiff, moist, olive brown, SANDY SILT (ML), micaceous. 20 Stiff, moist, olive brown, SANDY SILT (ML), micaceous. Third to Very Stiff, moist, olive brown, SANDY SILT (ML), micaceous. 20 Stiff, moist, olive brown, SANDY SILT (ML), micaceous. Third to Very Stiff, moist, olive brown, CLAYEY SILT (ML). Stiff, moist, olive brown, SANDY SILT (ML), micaceous. Third to Very Stiff, moist, olive brown, CLAYEY SILT (ML). Stiff to Very Stiff, moist, olive brown, CLAYEY SILT (ML). Stiff to Very Stiff, moist, olive brown, CLAYEY SILT (ML). Stiff to Very Stiff, moist, olive brown, CLAYEY SILT (ML). Stiff to Very Stiff, moist, olive brown, CLAYEY SILT (ML). Stiff to Very Stiff, moist, olive brown, CLAYEY SILT (ML). Stiff to Very Stiff, moist, olive brown, CLAYEY SILT (ML). Stiff to Very Stiff, moist, olive brown, CLAYEY SILT (ML). Stiff to Very Stiff, moist, olive brown, CLAYEY SILT (ML). Stiff to Very Stiff, moist, olive brown, CLAYEY SILT (ML). Stiff to Very Stiff, moist, olive brown, CLAYEY SILT (ML). Stiff to Very Stiff, moist, olive brown, CLAYEY SILT (ML). Stiff to Very Stiff, moist, olive brown, CLAYEY SILT (ML). Stiff to Very Stiff, moist, olive brown, SANDY SiLT LOOD 1330 Strong odor. Froject: DOUGLAS AIRCRAFT COMPANY Project No.: B741863C LOG OF BORING 15TB Fig. B-5-1												
Asphalt covering. Medium dense, damp, yellowish brown, SILTY fine to medium grained SAND (SM), miacaceous, 4—inch CLAYET (John CLAYET (John CLAYET) (SILT) Loose, damp, yellowish brown, fine to medium grained SAND (SP-SM), with some SILT, 10 Color changing to gray with some yellowish brown mixed in. Less silt, micaceous, (FILL). Stiff, moist, olive brown, CLAYEY SILT 15 Stiff, moist, olive brown, SANDY SILT (ML), micaceous. 20 Stiff, moist, olive brown, SANDY SILT (ML), micaceous. Third to Very Stiff, moist, olive brown, SANDY SILT (ML), micaceous. 20 Stiff, moist, olive brown, SANDY SILT (ML), micaceous. Third to Very Stiff, moist, olive brown, CLAYEY SILT (ML). Stiff, moist, olive brown, SANDY SILT (ML), micaceous. Third to Very Stiff, moist, olive brown, CLAYEY SILT (ML). Stiff to Very Stiff, moist, olive brown, CLAYEY SILT (ML). Stiff to Very Stiff, moist, olive brown, CLAYEY SILT (ML). Stiff to Very Stiff, moist, olive brown, CLAYEY SILT (ML). Stiff to Very Stiff, moist, olive brown, CLAYEY SILT (ML). Stiff to Very Stiff, moist, olive brown, CLAYEY SILT (ML). Stiff to Very Stiff, moist, olive brown, CLAYEY SILT (ML). Stiff to Very Stiff, moist, olive brown, CLAYEY SILT (ML). Stiff to Very Stiff, moist, olive brown, CLAYEY SILT (ML). Stiff to Very Stiff, moist, olive brown, CLAYEY SILT (ML). Stiff to Very Stiff, moist, olive brown, CLAYEY SILT (ML). Stiff to Very Stiff, moist, olive brown, CLAYEY SILT (ML). Stiff to Very Stiff, moist, olive brown, CLAYEY SILT (ML). Stiff to Very Stiff, moist, olive brown, SANDY SiLT LOOD 1330 Strong odor. Froject: DOUGLAS AIRCRAFT COMPANY Project No.: B741863C LOG OF BORING 15TB Fig. B-5-1	王소	DECODIONA	WELL		INF	ORMA	IION	(e)	DEMARKS			
Asphalt covering. Medium dense, damp, yellowish brown, SILTY fine to medium grained SAND (SM), miacaceous, 4—inch CLAYET (John CLAYET (John CLAYET) (SILT) Loose, damp, yellowish brown, fine to medium grained SAND (SP-SM), with some SILT, 10 Color changing to gray with some yellowish brown mixed in. Less silt, micaceous, (FILL). Stiff, moist, olive brown, CLAYEY SILT 15 Stiff, moist, olive brown, SANDY SILT (ML), micaceous. 20 Stiff, moist, olive brown, SANDY SILT (ML), micaceous. Third to Very Stiff, moist, olive brown, SANDY SILT (ML), micaceous. 20 Stiff, moist, olive brown, SANDY SILT (ML), micaceous. Third to Very Stiff, moist, olive brown, CLAYEY SILT (ML). Stiff, moist, olive brown, SANDY SILT (ML), micaceous. Third to Very Stiff, moist, olive brown, CLAYEY SILT (ML). Stiff to Very Stiff, moist, olive brown, CLAYEY SILT (ML). Stiff to Very Stiff, moist, olive brown, CLAYEY SILT (ML). Stiff to Very Stiff, moist, olive brown, CLAYEY SILT (ML). Stiff to Very Stiff, moist, olive brown, CLAYEY SILT (ML). Stiff to Very Stiff, moist, olive brown, CLAYEY SILT (ML). Stiff to Very Stiff, moist, olive brown, CLAYEY SILT (ML). Stiff to Very Stiff, moist, olive brown, CLAYEY SILT (ML). Stiff to Very Stiff, moist, olive brown, CLAYEY SILT (ML). Stiff to Very Stiff, moist, olive brown, CLAYEY SILT (ML). Stiff to Very Stiff, moist, olive brown, CLAYEY SILT (ML). Stiff to Very Stiff, moist, olive brown, CLAYEY SILT (ML). Stiff to Very Stiff, moist, olive brown, CLAYEY SILT (ML). Stiff to Very Stiff, moist, olive brown, SANDY SiLT LOOD 1330 Strong odor. Froject: DOUGLAS AIRCRAFT COMPANY Project No.: B741863C LOG OF BORING 15TB Fig. B-5-1	E E	DESCRIP HON	100		1	اب	0.V.A.	<u> </u>	KEMAKKS			
Asphalt covering. Medium dense, damp, yellowish brown, SILTY fine to medium grained SAND (SM), miacaceous, 4—inch CLAYET (John CLAYET (John CLAYET) (SILT) Loose, damp, yellowish brown, fine to medium grained SAND (SP-SM), with some SILT, 10 Color changing to gray with some yellowish brown mixed in. Less silt, micaceous, (FILL). Stiff, moist, olive brown, CLAYEY SILT 15 Stiff, moist, olive brown, SANDY SILT (ML), micaceous. 20 Stiff, moist, olive brown, SANDY SILT (ML), micaceous. Third to Very Stiff, moist, olive brown, SANDY SILT (ML), micaceous. 20 Stiff, moist, olive brown, SANDY SILT (ML), micaceous. Third to Very Stiff, moist, olive brown, CLAYEY SILT (ML). Stiff, moist, olive brown, SANDY SILT (ML), micaceous. Third to Very Stiff, moist, olive brown, CLAYEY SILT (ML). Stiff to Very Stiff, moist, olive brown, CLAYEY SILT (ML). Stiff to Very Stiff, moist, olive brown, CLAYEY SILT (ML). Stiff to Very Stiff, moist, olive brown, CLAYEY SILT (ML). Stiff to Very Stiff, moist, olive brown, CLAYEY SILT (ML). Stiff to Very Stiff, moist, olive brown, CLAYEY SILT (ML). Stiff to Very Stiff, moist, olive brown, CLAYEY SILT (ML). Stiff to Very Stiff, moist, olive brown, CLAYEY SILT (ML). Stiff to Very Stiff, moist, olive brown, CLAYEY SILT (ML). Stiff to Very Stiff, moist, olive brown, CLAYEY SILT (ML). Stiff to Very Stiff, moist, olive brown, CLAYEY SILT (ML). Stiff to Very Stiff, moist, olive brown, CLAYEY SILT (ML). Stiff to Very Stiff, moist, olive brown, CLAYEY SILT (ML). Stiff to Very Stiff, moist, olive brown, SANDY SiLT LOOD 1330 Strong odor. Froject: DOUGLAS AIRCRAFT COMPANY Project No.: B741863C LOG OF BORING 15TB Fig. B-5-1			LOG	ó	ê	Mo.	(mpm)	ate				
Medium dense, damp, yellowish brown, SILT fine to medium groined SAND (SM), micaceous, 4-inch CLAYEY layer near surface. (FILL) Laose, damp, yellowish brown, fine to medium grained SAND (SP-SM), with some SILT, micaceous, (FILL). Stiff, moist, olive brown, CLAYEY SILT (ML), micaceous. Stiff, moist, olive brown, SANDY SILT (ML), micaceous. Stiff, moist, olive brown, SANDY SILT (ML), micaceous. Stiff, moist, olive brown, SANDY SILT 20 Stiff, moist, olive brown, SANDY SILT (ML), micaceous. Stiff, moist, olive brown, SANDY SILT LOOD 1300 Strong odor. Strong odor. Froject: DOUGLAS AIRCRAFT COMPANY Project: DOUGLAS AIRCRAFT COMPANY Project: No.: 8741863C	<u> </u>	Asphalt covering		Z								
Time to medium grained SAND (SM), micaceous, 4—inch CLAYEY logical property in the same fine grained SAND (SP-SM), with some Silt, micaceous, (Fill.) Stiff, moist, olive brown, SANDY Silt (ML), micaceous. Silf, moist, olive brown, SANDY Silt (ML), micaceous. Silf, moist, olive brown, SANDY Silt Silf, moist, olive brown, SANDY Silt Silf, moist, olive brown, SANDY Silt Silf, ML), micaceous. Silf, moist, olive brown, SANDY Silt Silf, ML), micaceous. Silf, moist, olive brown, SANDY Silt Silf, ML), micaceous. Silf, moist, olive brown, SANDY Silt Silf, ML), micaceous. Silf, moist, olive brown, SANDY Silt Silf, ML), micaceous. Silf, moist, olive brown, SANDY Silt Silf, ML), micaceous. Silf, moist, olive brown, SANDY Silt Silf, ML), micaceous. Silf, moist, olive brown, SANDY Silt Silf, ML), micaceous. Silf, moist, olive brown, SANDY Silt Silf, ML), micaceous. Silf, moist, olive brown, SANDY Silt Silf, ML), micaceous. Silf, moist, olive brown, SANDY Silt Silt, oliv		Medium dense, damp, yellowish brown, SILTY		1	XI	9	10	1230	Definite odor.			
Losse, damp, yellowish brown, fine to medium grained SAND (SP-SM), with some SILT, micaceous, (FILL). 10 Color changing to gray with some yellowish brown mixed in. Less silt, micaceous (SP)(FILL) 5tiff, moist, dive brown, CLAYEY SILT (ML), micaceous. 15 4 11 >1000 1300 Strong odor. 5tiff, moist, dive brown, SANDY SILT (ML), micaceous. 20 5 1240 Strong odor. 3	:	fine to medium grained SAND (SM), micaceous,			Н	Ī						
grained SAND (SP-SM), with some SILT. 10 Color changing to gray with some yellowish trown mixed in. Less sift, microceous (SP(FILL)). Stiff, moist, olive brown, CLAYEY SILT. 15 4 11 >1000 1300 Strong odor. Stiff, moist, olive brown, SANDY SILT. (ML), microceous. 20 5 9 >1000 1310 Strong odor. Stiff to very stiff, moist, olive brown, CLAYEY SILT. 20 5 7 20 >1000 1320 Strong odor. 30 7 20 >1000 1335 Strong odor. 31 1 >1000 1320 Strong odor. 32 10 >1000 1335 Strong odor. 33 10 >1000 1345 Strong odor. 4 10 >1000 1345 Strong odor.	-	4-inch CLAYEY layer near surface. (FILL)	-	Ì								
10	:	Loose, damp, yellowish brown, fine to medium										
10	5	grained SAND (SP-SM), with some SILT,	Ł		H	2	5 0	1240	Strang odos			
Color challing to gray with some mixed in. Less silt, micaceous (SP).(FILL) Stiff, moist, dive brown, CLAYEY SILT (ML), micaceous. 20 5 X 9 >1000 1310 Strong odor. Stiff to very stiff, moist, dive brown, CLAYEY SILT (ML), micaceous. 5 X 9 >1000 1310 Strong odor. 5 X 14 >1000 1320 Strong odor. 7 X 20 >1000 1335 Strong odor. Project: DOUGLAS AIRCRAFT COMPANY Project No.: 8 X 10 >1000 1345 Strong odor. LOG OF BORING 15TB Fig. B-5-1	.	micaceous, (FILL).	ł	~	\square		52	1240	Strong odor.			
Color challing to gray with some mixed in. Less silt, micaceous (SP).(FILL) Stiff, moist, dive brown, CLAYEY SILT (ML), micaceous. 20 5 X 9 >1000 1310 Strong odor. Stiff to very stiff, moist, dive brown, CLAYEY SILT (ML), micaceous. 5 X 9 >1000 1310 Strong odor. 5 X 14 >1000 1320 Strong odor. 7 X 20 >1000 1335 Strong odor. Project: DOUGLAS AIRCRAFT COMPANY Project No.: 8 X 10 >1000 1345 Strong odor. LOG OF BORING 15TB Fig. B-5-1]			İ			! !					
Color challing to gray with some mixed in. Less silt, micaceous (SP).(FILL) Stiff, moist, dive brown, CLAYEY SILT (ML), micaceous. 20 5 X 9 >1000 1310 Strong odor. Stiff to very stiff, moist, dive brown, CLAYEY SILT (ML), micaceous. 5 X 9 >1000 1310 Strong odor. 5 X 14 >1000 1320 Strong odor. 7 X 20 >1000 1335 Strong odor. Project: DOUGLAS AIRCRAFT COMPANY Project No.: 8 X 10 >1000 1345 Strong odor. LOG OF BORING 15TB Fig. B-5-1	-	-	+		$ \ $			•				
Color challing to gray with some mixed in. Less silt, micaceous (SP).(FILL) Stiff, moist, dive brown, CLAYEY SILT (ML), micaceous. 20 5 X 9 >1000 1310 Strong odor. Stiff to very stiff, moist, dive brown, CLAYEY SILT (ML), micaceous. 5 X 9 >1000 1310 Strong odor. 5 X 14 >1000 1320 Strong odor. 7 X 20 >1000 1335 Strong odor. Project: DOUGLAS AIRCRAFT COMPANY Project No.: 8 X 10 >1000 1345 Strong odor. LOG OF BORING 15TB Fig. B-5-1	:	•	Ŧ]						
Color challing to gray with some mixed in. Less silt, micaceous (SP).(FILL) Stiff, moist, dive brown, CLAYEY SILT (ML), micaceous. 20 5 X 9 >1000 1310 Strong odor. Stiff to very stiff, moist, dive brown, CLAYEY SILT (ML), micaceous. 5 X 9 >1000 1310 Strong odor. 5 X 14 >1000 1320 Strong odor. 7 X 20 >1000 1335 Strong odor. Project: DOUGLAS AIRCRAFT COMPANY Project No.: 8 X 10 >1000 1345 Strong odor. LOG OF BORING 15TB Fig. B-5-1	10	•	Ţ	_	H	_						
Stiff, moist, olive brown, CLAYEY SILT	10-	Color changing to gray with some	‡	3	X	2	600	1250	Strong odor.			
Stiff, moist, olive brown, CLAYEY SILT] :	yellowish brown mixed in. Less silt,	‡	İ	Н			ļ				
ML), micaceous.	:		‡									
15	:		<u> </u>									
Stiff, moist, olive brown, SANDY SILT			ł									
Stiff, moist, dive brown, SANDY SILT 5 X 9 >1000 1310 Strong odor. Stiff Fa Very Stiff, moist, olive brown, CLAYEY SILT (ML). 7 X 20 >1000 1320 Strong odor. 7 X 20 >1000 1335 Strong odor. Project: DOUGLAS AIRCRAFT COMPANY Project No.: 8741863C LOG OF BORING 15TB Fig. B-5-1	15-	-	-	4	M	11	>1000	1300	Strong odor.			
Stiff to Very Stiff, moist, offive Brown, CLAYEY	:		Ŧ	}	H				١			
Stiff to Very Stiff, moist, offive Brown, CLAYEY			‡									
Stiff to Very Stiff, moist, olive Brown, CLAYEY	} ;		‡			ĺ '						
Stiff to Very Stiff, moist, alive brown, CLAYEY Stiff to Very Stiff, moist, alive brown, CLAYEY	:	(ML), micaceous.	‡									
Stiff to Very Stiff, moist, alive brown, CLAYEY Stiff to Very Stiff, moist, alive brown, CLAYEY	20-		‡	5	М	۵	1000	1310	Strong odor			
SILT (ML).	-		İ			9	1/1000	1310	Strong baor.			
SILT (ML).			t					1				
SILT (ML).		Stiff to very stiff, maist, alive brown, CLAYFY	+									
7 20 >1000 1335 Strong odor.			Ŧ				1					
7 20 >1000 1335 Strong odor.	25		Ŧ]					
with some fine grained SAND (ML). Project: DOUGLAS AIRCRAFT COMPANY Project No.: 8 X 10 >1000 1345 Strong odor. LOG OF BORING 15TB Fig. B-5-1	25.		‡	6	IX	14	>1000	1320	Strong odor.			
with some fine grained SAND (ML). Project: DOUGLAS AIRCRAFT COMPANY Project No.: 8 X 10 >1000 1345 Strong odor. LOG OF BORING 15TB Fig. B-5-1			‡	}								
with some fine grained SAND (ML). Project: DOUGLAS AIRCRAFT COMPANY Project No.: 8 X 10 >1000 1345 Strong odor. LOG OF BORING 15TB Fig. B-5-1	.	<u>t</u> .	‡									
with some fine grained SAND (ML). Project: DOUGLAS AIRCRAFT COMPANY Project No.: 8 X 10 >1000 1345 Strong odor. LOG OF BORING 15TB Fig. B-5-1			ţ									
with some fine grained SAND (ML). Project: DOUGLAS AIRCRAFT COMPANY Project No.: 8 X 10 >1000 1345 Strong odor. LOG OF BORING 15TB Fig. B-5-1			t]					
with some fine grained SAND (ML). Project: DOUGLAS AIRCRAFT COMPANY Project No.: 8 X 10 >1000 1345 Strong odor. LOG OF BORING 15TB Fig. B-5-1	30.		+	17	V	20	>1000	1335	Strong odor.			
Project: DOUGLAS AIRCRAFT COMPANY LOG OF BORING 15TB Fig. B-5-1			Ŧ		1	ł			Ĭ			
Project: DOUGLAS AIRCRAFT COMPANY LOG OF BORING 15TB Fig. B-5-1			Ŧ									
Project: DOUGLAS AIRCRAFT COMPANY LOG OF BORING 15TB Fig. B-5-1	-	• •	Ŧ				1					
Project: DOUGLAS AIRCRAFT COMPANY LOG OF BORING 15TB Fig. B-5-1		•	‡									
Project: DOUGLAS AIRCRAFT COMPANY LOG OF BORING 15TB Fig. B-5-1	35	1500	‡	Q	∇	10	100c) 1345	Strong odor			
Project No.: 8741863C EOG OF BORING 131B B-5-1		with some tine grained SAND (ML).	‡			1 '	1000	1070	Totaling book.			
Project No.: 8741863C EOG OF BORING 131B B-5-1			‡									
Project No.: 8741863C EOG OF BORING 131B B-5-1	Dri	Diect DOUGLAS AIRCRAFT COMPANY	1		_ 	l			· = - Fin			
0/410000	Į.	Sout No.		L(ЭG	OF	BOR	ING	1218 1			
		8741863C						W/O	DOWARD-CLYDE CONSULTANTS			

DESCRIPTION	WELL LOG	No.	Туре	Blow Count	0.V.A. (ppm)	Drilling Rate (T.)	REMARKS
Stiff, moist, olive brown, CLAYEY SILT (ML), micaceous.		9	X				Strong odor.
Bottom of Boring at 41 feet.			Α		71000	1400	ottong odor.
45-	+ + + + + + + + + + + + + + + + + + +			; 			
50	-				.		
55							
60	- - - - - - - -						
65							
70-	+ + + + + + + + + + + + +						
75							
80							
Project: DOUGLAS AIRCRAFT COMPANY Project No.: 8741863C	CONT.	LC)G	OF	BORI	NG	15TB Fig. B-5-2
07410000						woo	DWARD-CLYDE CONSULTANTS

A & R Drilling, Inc. Project: DOUGLAS AIRCRAFT COMPANY A & R Drilling, Inc. Project: DOUGLAS AIRCRAFT COMPANY Loc of Floridation Project: Douglas Aircraft	OCAT	See Location Map			ELE	VATION DATU	 -	1	Not Available
Case	RILLIN	IG A & P. Drilling Inc. DRILLER N	1. Rome	ero	DAT	TE VRTED			
### 15/	RILLIN		۹.		CON	APLETIO	N	41	ROCK — DEPTH (ft) —
Asphalt covering, Medium dense, moist, yellowish brown, SILTY Medium dense, moist, yellowish brown, SANDY SILT (ML), micoccous. 1	YPE I	OF N/A SCREEN PERFORATION	N/A		DIA	METER	OF .	8	DIAMETER OF N/A
PRIST COURL 124 NRS. SAMPLE NFORMATION 1	No OF	ES DIST UNDIST. 9 CC	_	_		CED BY	1	nan	CHECKED BY
DESCRIPTION WELL NOTORNATION NO. AVA WELL NOTORNATION NO. AVA NO. AVA WELL NOTORNATION NO. AVA NO. AVA WELL NOTORNATION NO. AVA WELL NOTORNATION NO. AVA WELL NOTORNATION NO. AVA NO. AVA WELL NOTORNATION NO. AVA NO. AVA WELL NO. AVA NO. AVA WELL NO. AVA NO. AVA NO. AVA WELL NO. AVA NO. AV	VATER	FIRST COMPL. 124	HRS	_		Γ,	Glaesi	nan	W. Razinajoo
Asphalt covering: Asphalt covering: Medium dense, moist, yellowish brown, SILTY fine to medium grained SAND (SM), micoceous. 1 X 11 75 1500 Little odor.									
Asplic covering. Madium dense, moist, yellowish brown, SILTY fine to medium grained SAND (SM), micaceous. 1	ΕJ		WELL		INFO	DRMAT	TON	ૄ	BENARKS
Asplic covering. Madium dense, moist, yellowish brown, SILTY fine to medium grained SAND (SM), micaceous. 1	EP.	DESCRIPTION					0.V.A.	뺭	REMARKS
Asplic covering. Madium dense, moist, yellowish brown, SILTY fine to medium grained SAND (SM), micaceous. 1			LOG	ć	8	¥ Ž		ig e	
Medium dense, moist, yellowish brown, SLITY fine to medium grained SAND (SM), micaceous.				ž		කර∣	(ppm)	2 %	
Stiff to very stiff, moist, vellowish brown, SANDY		Medium dense, moist, yellowish brown, SILTY fine to medium grained SAND (SM), micaceous	† † † + +	1	X	11	75	1500	Little odor.
SILT (ML), micaceous.	-		† †	2	X	2	200	1510	tank backfill and natural material. One edge of
20		SILT (ML), micaceous.	4	3	X	16	30	1515	No odor.
25 6	- - - -		+++++++++++++++++++++++++++++++++++++++		X				
30 30 Olive brown, CLAYEY SILT layer (ML). 7			† † †	ס		1 /	00		
35- Project: DOUGLAS AIRCRAFT COMPANY Project No.: 8 X 16 >1000 1610 LOG OF BORING 17TB Fig. B-6-	25		† † † †	6	X	17	950	1545	Definite odor.
Project: DOUGLAS AIRCRAFT COMPANY LOG OF BORING 17TB Fig. Project No.: 8741863C	30-	Olive brown, CLAYEY SILT layer (ML).	† † † † †	7	X	18	>1000	1600	Strong odor.
Project No.: 8741863C BOKING 171B B-6-			† † †	8	X	16	>1000	1610	
Project No.: 8741863C B-6-	Pro	pject: DOUGLAS AIRCRAFT COMPANY		11)G	ΩF	BORI	NG	17TB Fig.
0/11000	Pro	pject No.: 87418630		(O1	D 0, ()	, , ,	B-6-1

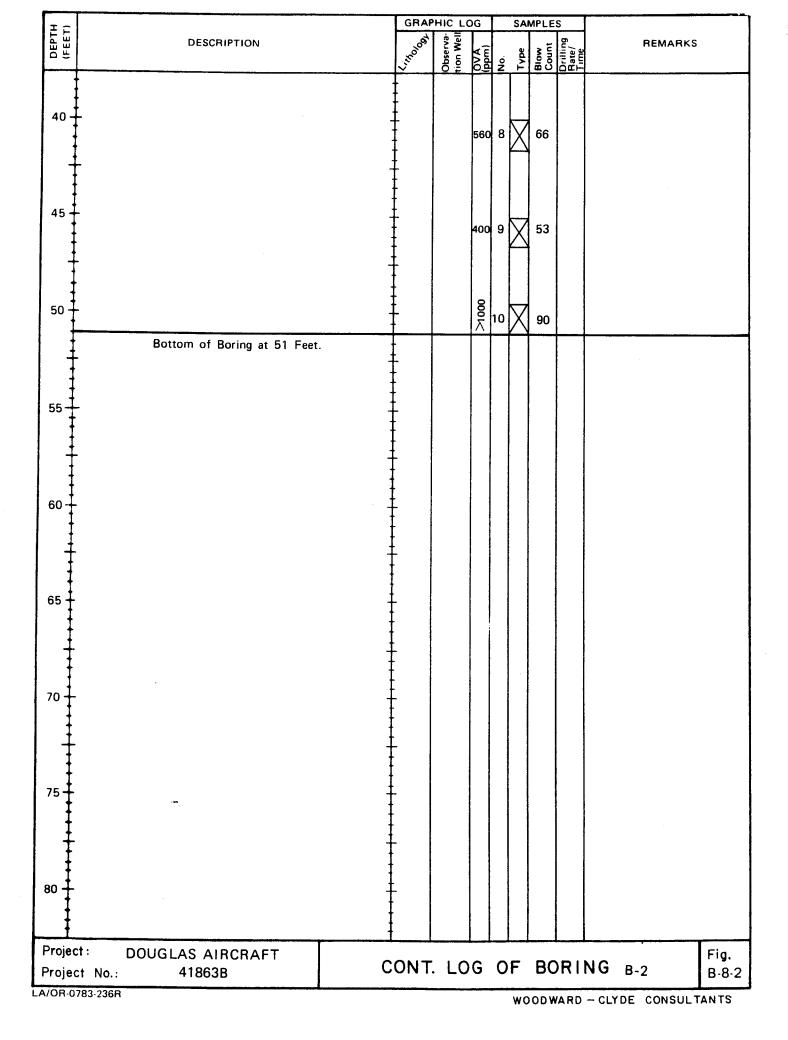
DEPTH (feet)	DESCRIPTION	WELL	Š.	Type	Blow Count	0.V.A. (ppm)	Drilling Rate (T.)		REMARKS	6
40	Very stiff, moist, olive brown, CLAYEY SILT (ML), little mica.	+	9	X		>1000				
	Bottom of Boring at 41 feet.	<u> </u>							Vertical	boring.
45	· · · -	† †						:		
	- - -	+								
50		+								
55		 								
	- -	 								
60	- - - -	† + +								
-	: - -	‡ †				·				
65		 								
70		† †	C							
70	- - - -	† 								
75		† † †								
	· · · · · · · · · · · · · · · · · · ·	† †								
80		† †								
Des	ject: DOUGLAS AIRCRAFT COMPANY	†		_		L	<u> </u>			<u> </u> -
	tank blank	CONT	. LC)G	OF	BOR	NG	17TE	3	Fig. B-6-2
	8741863C						WOO	DWARD-C	LYDE CONSULT	

BORI	NG B-1 Tanks T-19 and T-20		·	ELE	VAT	ION	A		······································	
DRIL	LING Datum Exploration DRILLER	R Keith			_			1986	DATE	4 April 1986
PRIL	Mobile B-53, 9.5 Hollow Stem Auger			COM	PLE	ŤIO	N į	50	ROCK DEPTH(FT)	
DIAM	ETER AND TYPE ELL CASING None Installed			OF :	NO.		DIS	1	UNDIST.	CORE
TYPE	OF Not Applicable			1 W	ATE		!FIR	ST_	COMPL.	24 HRS.
TYPE	OF PERFORATION No. 60 Sand (85%) / Bentonite Flo	our (15%)) BY			CHECKED	BY:
TYPE SEAL	OF Asphaltum			1			Leac	h	1	Jacobs
	7.05	GRA	PHIC L	.OG	Γ-	SAN	APLES	<u> </u>		
DEPTH (FEET)	DESCRIPTION	ast .	8)	/A m)					OEM	ARKS
2 E		j.irodest	Sam- pie		ė.	Type	Sount Count	E SE	112101	71110
-	— Asphalt		pie	gna	┸	-	8 0	DEF!		
	Rust colored, SILTY SAND (SM)	$\overline{-}$					l			
:		Ī	<u>.</u>				Ì	l		
1 :	Medium stiff, moist, dark brown, SANDY CLAY	Ŧ				\forall	6			
		Ŧ	0.0		1	ΧI	4			
5 -	Becomes very moist	‡			ľ	\vdash	3			
	Decomes very moist	‡								
]]		1								
		‡					15			
		‡	30		2	ΧI	22			
10-	Becoming light reddish brown and hard	‡				\hookrightarrow	35			
		1								
1 1		‡								
	- •	†					_			
	•	1	34		3	∇	6 12			
15	Becoming light brown and very stiff	Ŧ	34		١	\triangle	16			
		Ť								
1										
-	Medium dense, moist, light brown, CLAYEY, fine	. 🕂								
l	grained SAND (SC)	1		1	4	abla	11			
20		Ŧ	100			\triangle	8 13			
20	▼ Becoming lighter brown and drier	Ŧ								
l I		‡								
‡		‡								
‡		‡					8			
		‡	50		5	X	16 18			
25	Very stiff, moist, light brown, SANDY CLAY (CL	, †				~~	10			
‡	very surr, moist, light brown, SAND F CLAY (CL	·' ‡								
‡		‡								
‡		‡				X	8			
<u> </u>			45		6	X	15 30			
30 +	. Very stiff, moist, light brown, CLAY (CL)	1,	-				30			
‡	,,, ugit orotti, oeni (oe)	‡	}							
1		<u> </u>								
 						k -	9			
<u> </u>	Very dense, light gravish-brown, fine-grained SAND (SP)	Ŧ	4		7	ĮΧ	27 50			
35	ייין אואט (פר)	Ŧ	1			\Box	(4")			
‡		‡	}		1					
L ‡		Ŧ								
Proje	oct: DOUGLAS TORRANCE	······································	· · · · · · · · · · · · · · · · · · ·					·		Fig.
	DOUGLAG FORTIANOL		L	_OG	()F	B	ORII	NG B-1	B-7-1
<u> </u>	ect No.: 41863A									
LA/OR-	0783-235R					W	000	WARD	-CLYDE CO	NSULTANTS

		GRAP	HIC L	.OG		SAI	MPLE:	S		
DEPTH (FEET)	DESCRIPTION	Jikologi ⁴	(8)	A)			ī	ور ر	REMARKS	
DEI FE	DEGOTH TION	TO	Sam - ple	Back	ا ا	Туре	low	Drilling Rate/ Time		
		<u> </u>	ple	ĝù,q	Z	۲		OEF		
1 1		‡		7	8	∇	14 24			-
		ţ		′	١	\triangle	36			
40 🕇		t								
1 1	Moist, light brown, CLAY (CL) with some fine-	+							-	
1 1	grained SAND	Ţ			1					
1 7	Describes 11 OH TV (1 1 1 OAND (OM)	•					12			
1 1	Dense, brownish-gray, SILTY, fine-grained SAND (SM)	†		5	9	X	17 30			
45		Ł	İ				30			
1 1	Hard, moist, brown CLAY (CL)	-								
I	Tida, most, brown deat (de)	‡								
1 1	·	‡								
		t		10		∇	13 22 34			
1 1	Very dense, gray, fine-grained SAND (SP)	ł		10	10	Δ	34			
50 +					┢			-		
1 1	Bottom of Boring at 50 feet	‡				1				
1 1		<u> </u>								
1 1	•	‡			1		Ì			
1 1		ł			ļ	}				
55		Ŧ				Ì				
1 35 7		Ŧ					İ			
1 1		‡								
1 ‡	<u>.</u>	+						}		
1 ‡		<u>†</u>								
1 1		+			1					
60-	•	Ŧ								
1 1		1		1				1		
1 ‡		‡			ł			i		
1 1	•	<u>†</u>			ŀ					
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] 65 }		ł						l		
1007		Ŧ			1	1	1			
1 1		‡			ì			1		
1 #		‡						ļ		
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75		‡								
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‡		‡								
l t		†	1							
		t								
80 🕂		Ŧ		1		1				
		Ţ								
‡		‡								
Proje	ct: DOUGLAS TORRANCE	<u> </u>	<u> </u>		ــــــــــــــــــــــــــــــــــــــ	ــــــــــــــــــــــــــــــــــــــ	1			Fig.
1	1 1	CONT	r. L	OG.	()F	B	ORI	NG B-1	B-7-2
	11 NO.: 41803A									
LA/UH-(0783-236R					W	000	WARD	- CLYDE CONSULTA	ANTS

BORII	TION Boller Room At 1-19, 20 (C-6 F				ELE\	/ATI	ON TUM	Appro	oximately 52 Feet M	MSL
			Step		DAT STAI	RTEC	12/2	29/86	PATE FINISHED 1/5/	
POUL	MENT Simco 2400SK, Datum D27-L (D	ietrich Gasoli	ine E	ngine)	COM	PLET H(F	ION Ti	51´	ROCK _	
	TER AND TYPE 6" Hollow Stem Auger;	No Casing in	n Inst	talled					UNDIST. 20 COR	
EAF	PRATION N/A				DEP	TH	<u>FTII</u>	18T _	COMPL 24 F	1RS
TYPE TYPE	OF PERFORATION N/A				LOG	GED acob	BY: s/ Don:	aldson/	CHECKED BY:	
SEAL	OF Concrete, #60 Silca Sand (85%) and Ber			لِــــا			Gibsor)	su	
¥E.	DESCRIPTION	 '	UHAP	HIC LC	<u>ئ</u> ر		SAMPLE			
DEPTH (FEET)	DESCRIPTION	دا	888		≶ 夏	ó	See T	Drilling Rete/ Tume	REMARKS	
		- 3	7	ğ. Ş	8.8	Ž !	<u> </u>	DEF.		
	Concrete and pea gravel.	<u> </u>	ŀ			, k	\forall		Hydrocarbon odor	
	Stff, damp, olive to brown SILTY CLAY (CL-CH).	1			250	1/2	NR			•
5-		† † †			300	2	NR		Hydrocarbon odor staining throughou boring.	
10		† †			140	3	NR			,
15 -	Becomes olive to dark olive green.	† †			440	4	NR			
20 -		† † † †			>1000	5	NR			
25		†			560	6 2	NR			
30 -	Gravel lense (to 2"Ø).	+			460	7 5	NR		Drilling difficult- drilling. Commence drilling on 1/5/87 with d	g at 31'
	Becomes hard and grey, sandy, and thinly laminated.	‡	i						D27-L rig.	atum
35	Becomes silty.	†			71000	7	75			
Proj	ect: DOUGLAS TORRANCE		•							Fig.
1	ect No.: 41863B			L	OG	O	F 8	ORI	NG B-2	B-8-1
	0783-235R						woon	WARD	-CLYDE CONSULT	TANTS

WOODWAND CEICE CONTRACT



LOCA	TION Boller Room at 1-19, 20 (C-0 Facility)			ELE'	VAT DA	ION TUN	VI	Appo		/ 52 Feet	MSL
AGEN		Kit Step	hens	DAT STA	E RTE	D	1/	6/87	PINI		/6/87
	MENT Datum D27-L (Dietrich Gasoline Engine)			COM	PLE TH (TIO! FT)	N ;	31'	HOC DEP	TH(ET)	-
OF W	TER AND TYPE 6" Hollow Stem Auger; No Casin	g Instal	led	OF 8						12	ORE _
PERF	OF ORATION N/A			DEP	TH	IFT		ST No	one COM	i	HAS
BACK	OF PERFORATION N/A	v. n.		LOG					CHE	CKED BY:	
SEAL	Concrete, #60 Silca Sand (85%) and Bentonite (nald				Sd
E.E.		GRAF	HIC LO	OG		SAN	APLE				
DEPTH (FEET)	DESCRIPTION		2 \$	≤ E	,	2	R S	Orilling Rate/ Tyme		REMARK	(S
	-	Jegg	8 8	80	2	٤	Const	081			
	Concrete	7				İ					
	Dense, damp, light grey, fine SAND (SP) with	‡									ľ
1 3	FeO ₂ staining and hydrocarbon odor.	Ŧ						 			1
1 }	Stiff, damp, dark brown SILTY CLAY (CL-CH).	Ŧ									
5 -	, , , , , , , , , , , , , , , , , , , ,	Ŧ			l . k	d					
1 :		Ŧ		310		Δ	48				
1 1	<u>-</u>	<u> </u>									
1 1		<u>†</u>									
	10 11 15 11	‡				ļ					
10	Gravel lense (≤ 2"Ø). Becomes hard.	‡	,	105	2	\Box	30				
	, y boomies flate.	<u> </u>		105		Δ	50/ 5"				
1 4	• •	‡									
		<u> </u>									
	A A A A A A A A A A A A A A A A A A A	‡							Ensine	drilling	
15	 Medium dense, damp, grey CLAYEY SAND (SC) strong hydrocarbon odor. 	‡		62	3	\Box	27		Easter	ariting	
	(ob) thong my choosing the door,	‡		02	ľ	Д	21				
	· -	‡									
	•	‡									
20 1		‡									
20 +	▼ Becomes dense and greyish brown.	Ŧ		350	4	∇	47		•		
l		†			l	\hookrightarrow					
]									
 		<u>†</u>									
25	Becomes very dense, grey, more	Ī									
~~ <u>{</u>	SANDY (SC-SP).	<u> </u>		260	5	X	65				
t		<u> </u>				\leftarrow					
		†									
‡		‡									
30	•	‡		340	6	X	66				
‡	Bottom of Boring at 31 Feet.	†			П						
‡	•	‡									
‡		Ŧ									
		1					ļ.				
35 🕂	-	Ŧ									
Ιŧ		Ŧ	-								
		+	<u> </u>						<u> </u>		
Proje	et: DOUGLAS AIRCRAFT			^~		\		^ n	NC		Fig.
Proje	ect No.: 41863B		L	UG	C	J۲	8	UKI	NG	B-3	B-9-1
LA/OR-	0783-235R					w	000	WARI	-CLYD	E CONS	III TANTS

ORING	Douglas Aircraft C-6 Facility See	э Мар		EL	EVATION ND DATU	JM	N	lot Available
RILLIN GENC	A & R Drilling DRILLER	vl. Smi	th	D/ ST	ARTED	5-26	8-87	DATE 5-26-87
RILLIN QUIPE	MENT CIVIL 73 8-INCH U.D., H.S.A	•		CC	OMPLETIO PTH (#	DN 6	1.5	ROCK DEPTH (ft)
YPE I	DF _ SCREEN CASING PERFORATION	_		DI. BC	AMETER ORING (i	OF n.〉	8	DIAMETER OF
o OF AMPL	ES DIST 'UNDIST. 10 CO	-	_	LC	XCCED B	ΙΥ		CHECKED BY
ATER PTH	(ft) FIRST _ COMPL _ 24	HRS	-	7	Ρ.	Glaesi	man	B. Jacobs
				:	SAMPL	E		
Ξ,		WELL		INF	ORMA	TION	Drilling Rate (Time)	
UEP IH (feet)	DESCRIPTION					0.V.A.	_F)	REMARKS
בֿ בֿ		LOG		اچ	Blow Count		te (
			No.	Ty GÇ	ස්රි	(ppm)	Dri Ra	
	5" Asphalt Cover. Damp, reddish brown, SILTY fine grained SAND (SP), with some CLAY and GRAVEL. (logged from cuttings only)						1330	
5-	Damp, yellowish brown, SILTY fine grained SAND (SM-SP).							
10						1		
5			1	X		40	1400	
20	Damp, medium gray, CLAYEY SILT (ML), some in fine grained SAND, brown oily staining in tube #4.		2	X		500	1420	Strong odor.
25			3	X		550	1450	Strong odor.
30			4	X		550	1515	Strong odor.
35	Very damp (product), brownish gray, SANDY SILT to SILTY SAND (SM), free product on tubes.		5	X		+1000	1535	Strong odor.
 	ject: DOUGLAS AIRCRAFT COMPANY		, ,		~-	D 0.5:		D 4 Fig
	iggt No.		LC)G	UF	BORI	NG	B-4 '
	41863B							B-10 DWARD-CLYDE CONSULTANTS

DEPTH (feet)	DESCRIPTION	WELL LOG	No.	Туре	Blow Count	0.V.A. (ppm)	Drilling Rate (T.)	REMARKS
40-	Damp, gray, CLAYEY SILT (ML). on tubes.		6	X	N/A	700	1550	Strong odor.
45-			7	X	11	400	1620	Strong odor.
50-	Damp, brown, SILTY fine SAND (SM-SP), micaceous.		8	X	11	400	1645	Strong odor.
55			9	X	11	+1000	1710	
60			10	X	11	100	1750	Slight to moderate odor.
65-	Bottom of Boring at 60.5 feet.							Note: Angle drilled at 26°. No blow counts taken due to angle drilling.
70			-					¥
75-	- - - - - - -							
80-	- - - - -							
	ject: DOUGLAS AIRCRAFT COMPANY ject No.: 41863B	CONT.	LC)G	OF	BORI		B-4 Fig. B-10-2

APPENDIX C

WATER AND SOIL ANALYTICAL RESULTS WITH CHAIN-OF-CUSTODY FORMS

(ABC/DAPPA)

April 2, 1987

WOODWARD-CLYDE 203 N. Golden Circle Drive Santa Ana, CA 92705

Attn: Allistair Callendar

JOB NO. 5557



ANALYTICAL CHEMISTS

LABORATORY REPORT

Samples: One (1) water sample

Date Received: 3-27-87 Purchase Order No: 41863B

The sample was analyzed for volatile organic compounds by GCMS according to EPA method 624. The results are reported in the following Organics Analysis Data Results sheets.

Page 1 of 1

Michael Shelton Senior Chemist

D.J. Northington, Ph.D. Technical Director

WEST COAST ANALYTICAL SERVICE, INC.

CLIENT: WOODWARD-CLYDE

SAMPLE: MW-1(41)A

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: 03/27/87

GCMS FILENAME: 5557V3

LEVEL:

LOW

DATE PREPARED:

MATRIX:

WATER

STANDARD ID:

04/01/87 V0A280

DATE ANALYZED: 04/01/87

INSTRUMENT ID: 5101

SAMPLE AMOUNT: 100UL

DETECTION

CAS # COMPOUND CONC: UG/L(PPB) LIMIT

74-87-3	CHLOROMETHANE	ND	3 00.
74-83-9	BROMOMETHANE	ND	3 00.
75-01-4	VINYL CHLORIDE	ND	3 00.
75-00-3	CHLOROETHANE	ND	300 .
75-09-2	METHYLENE CHLORIDE	ND	500 .
67-64-1	ACETONE	ND	50 0.
107-02-8	ACROLEIN	ND	5 00.
107-13-1	ACRYLONITRILE	ND	500
75-15-0	CARBON DISULFIDE	NI:	5 0.
75-35-4	1,1-DICHLOROETHENE	280 0.	5 0.
75-34-3	1,1-DICHLORDETHANE	NΕ	5 0.
156-60-5	TRANS-1, 2-DICHLOROETHENE	ND	50
109-99-9	TETRAHYDROFUKAN	ND	5 0.
75-69-4	TRICHLOROFLUOROMETHANE	NE:	50
76-13-1	FREON-TF	ND	5 0.
106-93-4	ETHYLENE DIBROMIDE	ND	5 0.
123-91-1	1,4-DIOXANE	ND	5 0.
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	ND	50
67-66-3	CHLOROFORM	ND	50.
107-06-2	1,2-DICHLORDETHANE	ND	50.
78-93-3	2-BUTANONE	ND	500
71-55-6	1,1,1-TRICHLOROETHANE	300.	5 0.
16-23-5	CARBON TETRACHLORIDE	ND	5 0.
108-05-4	VINYL ACETATE	ND	3 00
75-27-4	BROMODICHLOROMETHANE	ND	50.
79-34-5	1, 1, 2, 2-TETRACHLORGETHANE	ND	50
78-8 7-5	1.2-DICHLORDPROPANE	ND	5 0
10061-02-6	TRANS-1,3-DICHLOROPROPENE	NE:	50.
79-01-6	TRICHLOROETHENE	4600.	50.
124-48-1	DIBROMOCHLOROMETHANE	ND	5 0.
79-00-5	1,1,2-TRICHLORDETHANE	NL	50.
71-43-2	BENZENE	85	50
10041-01-5	CIS-1,3-DICHLOROPROPENE	NE	50
110-75-8	2-CHLOROETHYLVINYL ETHER	ΝĽ	500.
75-25-2	BROMOFORM	ND .	50.
119-78-6	2-HEXANONE	ND:	300
108-10-1	4-METHYL-2-PENTANDNE	NL	3 00
127-18-4	TETRACHLORGETHENE	ND	5 0
108-88-3	TOLUENE	ND	5 0.

WEST COAST ANALYTICAL SERVICE, INC.

CLIENT: WOODWARD-CLYDE

SAMPLE: MW-1(41)A

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: 03/27/87

GCMS FILENAME: 5557V3

LEVEL:

LOW

MATRIX:

WATER

DATE PREPARED:

04/01/87

DATE ANALYZED: 04/01/87

STANDARD ID:

V0A280

INSTRUMENT ID: 5101

SAMPLE AMOUNT: 100UL

DETECTION

CAS # COMPOUND CONC: UG/L(PPB) LIMIT

108-90-7	CHLOROBENZENE	ND	50
100-41-4	ETHYLBENZENE	ND	5 0.
100-42-5	STYRENE	ND	5 0.
95-47-6	TOTAL XYLENES	ND	5 0.
108-41-8	M-CHLOROTOLUENE	ND	50
95-50-1	1,2-DICHLOROBENZENE	ND	50
541-73-1	1,3-DICHLOROBENZENE	ND	5 0.
106-46-7	1,4-DICHLOROBENZENE	ND	50.
120-82-1	1, 2, 4-TRICHLOROBENZENE	ND	50

WEST COAST ANALYTICAL SERVICE, INC.

CLIENT: WOODWARD-CLYDE

SAMPLE: MW-1(41)A

TENTATIVELY IDENTIFIED COMPOUNDS

COMPOUND NAME FRACTION CONCENTRATION

UG/L(PPB)

1 NONE FOUND VOA

Data Reporting Qualifiers

- Value If the result is a value greater than or equal to the Detection Limit (DL), the value is reported.
- ND Indicates that the compound was analyzed for but not detected. The minimum DL for the sample with the ND is reported based on necessary concentration or dilution actions.
- TR Indicates an estimated value. This flag is used when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the specified DL but greater than zero.

CHAIN OF CUSTODY RECORD PAGE LOF DATE 3 127 87 PROJECT NO: UIGG 3 B Sample Number Location Type of Sample Marerial Medical Marerial Medical	Woodv	vard-Clyde Consult	ants 🗳	SHIPMENT NO	·:
PROJECT NO.: 4186 3 B Sample Number Location Type of Sample Type of Container Temp Chemical AW - (41)A Location Material Method AW - (41)B	CHA	IN OF CUSTODY RECO	ORD	PAGELOF	:
PROJECT NO.: 418638 Sample Number Location Type of Sample Material Method Temp Demical Temp Demical Temp Demical Temp Demical Temp Demical Temp Demical Temp Demical Temp Demical Temp Demical Temp Demical Temp Demical Temp Demical Temp Demical Temp Demical Temp Temp Demical Temp Demical Temp Te	PROJECT NAME:	Dougles - Torr	ance	DATE 3 /2	27 87
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LA-OR-0183-421

April 16, 1987

WOODWARD-CLYDE 203 N. Golden Circle Drive Santa Ana, CA 92705

Attn: Allistair Callendar

JOB NO. 5677



ANALYTICAL CHEMISTS

LABORATORY REPORT

Samples: Seven (7) water samples

Date Received: 4-13-87 Purchase Order No: 41863B

Three of the samples were analyzed for volatile organic compounds by GCMS according to EPA method 624. The results are reported in the following Organics Analysis Data Results Sheets.

Page 1 of 1

Michael Shelton Senior Chemist

D.J. Northington, Ph.D. Technical Director

CLIENT: WOODWARD CLYDE

. - . -

SAMPLE: MW-1, A

ANALYSIS TYPE: EPA METHOD 8240 (624)

DRGANICS ANALYSIS DATA RESULTS

DATE RECEIVED:

04/13/87

OCMS FILENAME:

5677V2

 $\frac{1}{2} \left(\frac{1}{2}

LEVEL:

LOW

MATRIX:

WATER

DATE PREPARED:

04/15/87

DATE ANALYZED:

04/15/87

STANDARD ID:

VDA457

INSTRUMENT ID: #5100

SAMPLE AMOUNT: 100UL

				DETECTION
CAS #	COMPOUND	CONC:	UG/L(PPB)	LIMIT

74-87-3	CHLOROMETHANE		ND	3 00.
74-83-9	BROMOMETHANE		ND	3 00.
75-01-4	VINYL CHLORIDE		ND	3 00.
75-0 0-3	CHLOROETHANE		ND	30 0.
75-09-2	METHYLENE CHLORIDE		ND	5 00.
67-64-1	ACETONE		ND	5 00.
107-02-8	ACROLEIN		ND	5 00.
107-13-1	ACRYLONITRILE		ND	50 0.
75-15-0	CARBON DISULFIDE		ND	50 .
75-35-4	1,1-DICHLOROETHENE		370 0.	50 .
75-34-3	1,1-DICHLOROETHANE		ND	5 0.
156-60-5	TRANS-1, 2-DICHLOROETHENE		ND	5 0.
109-99-9	TETRAHYDROFURAN		ND	5 0.
75-69-4	TRICHLOROFLUOROMETHANE		ND	5 0.
76-13-1	FREON-TF		ND	5 0.
106-93-4	ETHYLENE DIBROMIDE		ND	5 0.
123-91-1	1,4-DIOXANE		ND	5 0.
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE		ND	5 0.
67-66-3	CHLOROFORM		ND	5 0.
107-06-2	1,2-DICHLOROETHANE		ND	5 0.
78-93-3	2-BUTANONE		ND	5 00.
71-55-6	1,1,1-TRICHLOROETHANE		260 .	5 0.
16-23-5	CARBON TETRACHLORIDE		ND	5 0.
108-05-4	VINYL ACETATE		ND	3 00.
75-27-4	BROMODICHLOROMETHANE		ND	5 0.
79-34-5	1, 1, 2, 2-TETRACHLORDETHANE		ND	5 0.
78-87-5	1,2-DICHLOROPROPANE		, ND	5 0.
10061-02-6	TRANS-1,3-DICHLOROPROPENE		ND	5 0.
79-01-6	TRICHLOROETHENE		5 500.	5 0.
124-48-1	CHLORODIBROMOMETHANE		ND	5 0.
79-00-5	1,1,2-TRICHLORDETHANE		ND	5 0.
71-43-2	BENZENE		110.	5 0.
10061-01-5	CIS-1,3-DICHLOROPROPENE		ND	5 0.
110-75-8	2-CHLORDETHYLVINYLETHER		ND	500 .
75-25-2	BROMOFORM		ND	5 0.
119-78-6	2-HEXANONE		ND	3 00.
108-10-1	4-METHYL-2-PENTANONE		ND	3 00.
127-18-4	TETRACHLOROETHENE		ND	5 0.
108-88-3	TOLUENE		ND	5 0.

CLIENT: WOODWARD CLYDE

SAMPLE: MW-1, A

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED:

04/13/87

GCMS FILENAME:

5677V2

LEVEL:

LOW

MATRIX:

WATER

DATE PREPARED:

04/15/87

D: 04/15/87

STANDARD ID:

V0A457

DATE ANALYZED: INSTRUMENT ID:

And the entry of the entry of the contract of

5100

SAMPLE AMOUNT:

100UL

	CAS #	COMPOUND	CONC:	UG/L(PPB)	DETECTION LIMIT
	X 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2				
	108-90-7	CHLOROBENZENE		ND	5 0.
1	100-41-4	ETHYLBENZENE		ND	5 0.
ļ	100-42-5	STYRENE		ND	5 0.
١.	95-47-6	TOTAL XYLENES		ND	5 0.
,	108-41-8	M-CHLOROTOLUENE		ND	50 .
	541-73-1	1.3-DICHLOROBENZENE		ND	5 0.
	106-46-7	1,4-DICHLOROBENZENE		ND	5 0.
	95-50-1	1,2-DICHLOROBENZENE		ND	5 0.
ĺ	120-82-1	1, 2, 4-TRICHLOROBENZENE		ND	50 .

CLIENT: WOODWARD CLYDE

SAMPLE: MW-1, A

TENTATIVELY IDENTIFIED COMPOUNDS

COMPOUND NAME FRACTION CONCENTRATION

UG/L(PPB)

1 NONE FOUND VOA

CLIENT: WOODWARD CLYDE

SAMPLE: MW-1, B

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED:

04/13/87

CCMS FILENAME:

-5677V3

LEVEL:

LOW

MATRIX:

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WATER ...

DATE PREPARED:

04/15/87

DATE ANALYZED:

04/15/87

STANDARD ID: SAMPLE AMOUNT:

VDA457 100UL

INSTRUMENT ID:

5100

CAS #	COMPOUND	CONC:	UG/L(PPB)	DETECTION LIMIT
74-87-3	CHLOROMETHANE		ND	300.
74-83-9	BROMOMETHANE		ND	3 00.
75-01-4	VINYL CHLORIDE		ND	300.
75-00-3	CHLOROETHANE		ND	300 .
75-09-2	METHYLENE CHLORIDE		ND	5 00.
67-64-1	ACETONE		ND	5 00.
107-02-8	ACROLEIN		ND	5 00.
107-13-1	ACRYLONITRILE		ND	50 0.
75-15-0	CARBON DISULFIDE		ND	5 0.
75-35-4	1,1-DICHLOROETHENE		2500 .	5 0.
75-34-3	1,1-DICHLOROETHANE		ND	5 0.
156-60-5	TRANS-1, 2-DICHLOROETHENE		ND	5 0.
109-99-9	TETRAHYDROFURAN		ND	5 0.
75-69-4	TRICHLOROFLUOROMETHANE		ND	5 0.
76-13-1	FREON-TF		ND	5 0.
106-93-4	ETHYLENE DIBROMIDE		ND	5 0.
123-91-1	1,4-DIOXANE		ND	5 0.
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE		ND	5 0.
67-66-3	CHLOROFORM		ND	5 0.
107-06-2	1,2-DICHLOROETHANE		ND	5 0.
78-93-3	2-BUTANONE		ND	500 .
71-55-6	1,1,1-TRICHLORDETHANE		120.	5 0.
16-23-5	CARBON TETRACHLORIDE		ND	5 0.
108-05-4	VINYL ACETATE		ND	300 .
75-27-4	BROMODICHLOROMETHANE		ND	5 0.
79-34-5	1, 1, 2, 2-TETRACHLORDETHANE		ND	5 0.
78-87-5	1,2-DICHLOROPROPANE		ND	5 0.
10061-02-6	TRANS-1,3-DICHLOROPROPENE		ND	5 0.
79-01-6	TRICHLDROETHENE		3600.	5 0.
124-48-1	CHLORODIBROMOMETHANE		ND	50 .
79-00-5	1,1,2-TRICHLOROETHANE		ND	5 0.
71-43-2	BENZENE		ND	5 0.
10061-01-5	CIS-1,3-DICHLOROPROPENE		ND	5 0.
110-75-8	2-CHLORDETHYLVINYLETHER		ND	5 00.
75-25-2	BROMOFORM		ND	5 0.
119-78-6	2-HEXANONE		ND	3 00.
108-10-1	4-METHYL-2-PENTANONE		ND	30 0.
127-18-4	TETRACHLOROETHENE		ND	5 0.
108-88-3	TOLUENE		ND	5 0.

CLIENT: WOODWARD CLYDE

SAMPLE: MW-1, B

TENTATIVELY IDENTIFIED COMPOUNDS

COMPOUND NAME

FRACTION CONCENTRATION

UG/L(PPB)

1 NONE FOUND

VDA

CLIENT: WOODWARD CLYDE

SAMPLE: TRIP BLANK

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED:

04/13/87

OCMS FILENAME:

5677V4

LEVEL:

LOW

MATRIX:

WATER

DATE PREPARED: STANDARD ID:

04/15/87 VDA457

DATE ANALYZED:

04/15/87

SAMPLE AMOUNT:

5. DML

INSTRUMENT ID: 5100

DETECTION CAS # COMPOUND LIMIT

CAS #	COMPOUND	CONC:	UG/L(PPB)	LIMIT

74-87-3	CHLOROMETHANE		ND ND	5 .
74-83-9	BROMOMETHANE		ND	5 .
75-01-4	VINYL CHLORIDE		ND	5 .
75-00-3	CHLOROETHANE		ND	5 .
75-09-2	METHYLENE CHLORIDE		ND	10.
67-64-1	ACETONE		ND	10.
107-02-8	ACROLEIN		ND	10.
107-13-1	ACRYLONITRILE		ND	10.
75-15-0	CARBON DISULFIDE		ND	1.
75-35-4	1,1-DICHLOROETHENE		ND	1.
75-34-3	1,1-DICHLOROETHANE		ND	1.
156-60-5	TRANS-1, 2-DICHLOROETHENE		ND	1.
109-99-9	TETRAHYDROFURAN		ND	1.
75-69-4	TRICHLOROFLUOROMETHANE		ND	1.
76-13-1	FREON-TF		ND	1.
106-93-4	ETHYLENE DIBROMIDE		ND	1.
123-91-1	1,4-DIOXANE		ND	1.
9 6-12-8	1,2-DIBROMO-3-CHLOROPROPANE		ND	1.
67-66-3	CHLOROFORM		ND	1.
107-06-2	1,2-DICHLOROETHANE		ND	1.
78-93-3	2-BUTANONE		ND	10.
71-55-6	1,1,1-TRICHLOROETHANE		ND	1.
16-23-5	CARBON TETRACHLORIDE		ND	1.
108-05-4	VINYL ACETATE		ND	5 .
75-27-4	BROMODICHLOROMETHANE		ND	1.
79-34-5	1, 1, 2, 2-TETRACHLORDETHANE		ND	1.
78-87-5	1,2-DICHLOROPROPANE		ND	1.
10061-02-6	TRANS-1,3-DICHLOROPROPENE		ND	1.
79-01-6	TRICHLORDETHENE		ND	1.
124-48-1	CHLORODIBROMOMETHANE		ND	1.
79-00-5	1, 1, 2-TRICHLOROETHANE		ND	1.
71-43-2	BENZENE		ND	1.
10061-01-5	CIS-1,3-DICHLOROPROPENE		ND	1.
110-75-8	2-CHLOROETHYLVINYLETHER		ND	10.
75-25-2	BROMOFORM		ND	1.
119-78-6	2-HEXANONE		ND	5 .
108-10-1	4-METHYL-2-PENTANONE		ND	5 .
127-18-4	TETRACHLORDETHENE		ND	1.
108-88-3	TOLUENE		ND	1.

CLIENT: WOODWARD CLYDE

SAMPLE: TRIP BLANK

ANALYSIS TYPE: EPA METHOD 8240 (624)

DRGANICS ANALYSIS DATA RESULTS

DATE RECEIVED:

04/13/87

GCMS FILENAME:

567744

LEVEL:

LOW

MATRIX:

WATER

DATE PREPARED:

04/15/87

DATE ANALYZED:

04/15/87

STANDARD ID:

VDA457

INSTRUMENT ID: 5100

SAMPLE AMOUNT:

5. OML

CAS #	COMPOUND	CONC:	UC/L(PPB)	DETECTION LIMIT
108-90-7	CHLOROBENZENE		ND	1.
100-41-4	ETHYLBENZENE		ND	1
100-42-5	STYRENE		ND	1.
95-47-6	TOTAL XYLENES		ND	1.
108-41-8	M-CHLOROTOLUENE		ND	1
541-73-1	1,3-DICHLOROBENZENE		ND	1.
106-46-7	1,4-DICHLOROBENZENE		ND	1
95-50-1	1, 2-DICHLOROBENZENE		ND	1
120-82-1	1, 2, 4-TRICHLOROBENZENE	,	ND	1.

CLIENT: WOODWARD CLYDE

SAMPLE: TRIP BLANK

TENTATIVELY IDENTIFIED COMPOUNDS

COMPOUND NAME FRACTION CONCENTRATION

UG/L(PPB)

NONE FOUND

VOA

Woodward-Clyde Consultants



CHAIN OF CUSTODY RECORD

PAGE | OF (

PROJECT NAME: DUSTAS - TOCIANCE
PROJECT NO.: 418638

DATE 4/13/87

Type of Sample Type of Preservation Analysis Required* Sample Number Location Type of Container Material Method Temp Chemical MW-1(41)A Builed 8240 1115-4 40 ml Viel 8240 tone vial L -500 ml Almber L O 11 500 Ml Anber در E 500 pl Amber LI 500 ml Ambra ۳ ч TMP Blank 40 ml Via B240 11 Total Number of Samples Shipped: Sampler's Signature: Received By: Marga Relinquished By Signature Date Signature___ 113/8 Printed Name Buildin TACOBS Printed Name / Margar Time Company Wordwird - Cyide Company___ 4:50 Reason____ Relinquished By: Received By: Date Signature_ Signature_ Printed Name___ Printed Name.... Time Company____ Company__ Reason____ Relinquished By: Received By: Date Signature_ Signature. Printed Name__ Printed Name_ Time Company____ Company___ Reason ___ Relinquished By: Received By: Date Signature_ Signature_ Printed Name ___ Printed Name__ Time Company___ Company__ Reason. Special Shipment / Handling / Storage Requirements: * Note — This does not constitute authorization to proceed with analysis

November 11, 1987

WOODWARD-CLYDE 203 N. Golden Circle Drive Santa Ana, CA 92705

Attn: Brian Jacobs

JOB NO. 7621



ANALYTICAL CHEMIST:

LABORATORY REPORT

Samples Received: Four (4) water samples in duplicate

Date Received: 11-2-87

Purchase Order No: Proj: 87418630-1000/Douglas

The samples were analyzed as follows:

Samples Analyzed Results <u>Analysis</u>

Three waters Volatile Organics

Data Sheets by EPA 624

Three waters Fuel Hydrocarbons by

Table I modified EPA 8015

TABLE I

Parts Per Million

Sample No.	Gasoline	Diesel <u>Fuel</u>	<u>Kerosene</u>	Mineral <u>Spirits</u>
MW-2B	ND	ND	ND	ND
MW-3B	ND	ND	ND	ND
MW-4B	ND	ND	ND	ND
Detection Limi	t 2	2	2	2

ND - Not Detected

Date Analyzed: 11-5-87

D.J. Northington, Ph.B.

Page 1 of 1

Michael Shelton Senior Chemist Technical Director

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: MW-2A

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: 11/02/87 GCMS FILENAME: 7621V1 LEVEL: LOW MATRIX: WATER DATE PREPARED: 11/11/87 11/11/87 DATE ANALYZED: STANDARD ID: INSTRUMENT ID: 5100 **VOA608**

SAMPLE AMOUNT: 5ML

CAS #	COMPOUND	CONC:	UG/L(PPB)	DETECTION LIMIT
74-87-3	CHLOROMETHANE	######################################	ND	5.
74-87-9	BROMOMETHANE		ND	5.
75-01-4	VINYL CHLORIDE		ND	5.
75-01-4	CHLOROETHANE		ND	5.
75-00-3	METHYLENE CHLORIDE		ND	10.
67-64-1	ACETONE		ND	10.
107-02-8	ACROLEIN		ND	10.
107-13-1	ACRYLONITRILE		ND	10.
75-15-0	CARBON DISULFIDE		ND	1.
75-35-4	1,1-DICHLOROETHENE		5.	î.
75-34-3	1,1-DICHLOROETHANE		ND	1.
156~60-5	TRANS-1,2-DICHLOROETHENE		ND	ī.
109-99-9	TETRAHYDROFURAN		ND	î.
75-69-4	TRICHLOROFLUOROMETHANE		ND	î.
76-13-1	FREON-TF		ND	1.
106-93-4	ETHYLENE DIBROMIDE		ND	1.
123-91-1	1,4-DIOXANE		ND	1.
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE		ND	1.
67-66-3	CHLOROFORM		ND	1.
107-06-2	1,2-DICHLOROETHANE		ND	1.
78-93-3	2-BUTANONE		ND	10.
71-55-6	1,1,1-TRICHLOROETHANE		5.	1.
16-23-5	CARBON TETRACHLORIDE		ND	1.
108-05-4	VINYL ACETATE		ND ND	5.
75-27-4	BROMODICHLOROMETHANE		ND ND	1.
79-34-5			ND	1.
79-34-5 78-87-5	1,1,2,2-TETRACHLOROETHANE 1,2-DICHLOROPROPANE		ND ND	1.
10061-02-6			ND	1.
79-01-6	TRICHLOROETHENE		14.	1.
124-48-1	CHLORODIBROMOMETHANE		ND	1.
79-00-5	1,1,2-TRICHLOROETHANE		ND	1.
71-43-2	BENZENE		ИD	1.
10061-01-5			ND ND	1.
110-75-8	CIS-1,3-DICHLOROPROPENE 2-CHLOROETHYLVINYLETHER		ND ND	10.
75-25-2			ND	10.
119-78-6	BROMOFORM		ND	5.
108-10-1	2-HEXANONE		ND ND	5. 5.
108-10-1	4-METHYL-2-PENTANONE TETRACHLOROETHENE		ND ND	1.
108-88-3			6.	1.
100-00-3	TOLUENE		0.	1.

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: MW-2A

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: 11/02/87 GCMS FILENAME: 7621V1 LEVEL: LOW MATRIX: WATER DATE PREPARED: 11/11/87 DATE ANALYZED: 11/11/87 STANDARD ID: **VOA608** INSTRUMENT ID: 5100

SAMPLE AMOUNT: 5ML

CAS #	COMPOUND	conc: u	G/L(PPB)	DETECTION LIMIT
		:===========		`
108-90-7	CHLOROBENZENE		ND	. .
100-41-4	ETHYLBENZENE		ND	1.
100-42-5	STYRENE		ND	1.
95-47-6	TOTAL XYLENES		ND	1.
108-41-8	M-CHLOROTOLUENE		ND	1.
541-73-1	1,3-DICHLOROBENZENE		ND	1.
106-46-7	1,4-DICHLOROBENZENE		ND	1.
95-50-1	1,2-DICHLOROBENZENE		ND	1.

CLIENT: WOODWARD-CLYDE

SITE:

DOUGLAS AIRCRAFT

SAMPLE: MW-2A

TENTATIVELY IDENTIFIED COMPOUNDS

COMPOUND NAME

FRACTION CONCENTRATION

UG/L(PPB)

1 NONE FOUND

VOA

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: MW-3A

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: 11/02/87 GCMS FILENAME: 7621V3 LEVEL: LOW WATER MATRIX: DATE PREPARED: 11/11/87 11/11/87 DATE ANALYZED: STANDARD ID: **VOA608** INSTRUMENT ID: 5100

SAMPLE AMOUNT: 5UL

CAS #	COMPOUND	CONC:	UG/ML(PPM)	DETECTION LIMIT
74-87-3	CHLOROMETHANE		ND	5.
74-83-9	BROMOMETHANE		ND	5.
75-01-4	VINYL CHLORIDE		ND	5.
75-00-3	CHLOROETHANE		ND	5.
75-09-2	METHYLENE CHLORIDE		ND	10.
67-64-1	ACETONE		ND	10.
107-02-8	ACROLEIN		ND	10.
107-13-1	ACRYLONITRILE		ND	10.
75-15-0	CARBON DISULFIDE	•	ND	1.
75-35-4	1,1-DICHLOROETHENE		38.	1.
75-34-3	1,1-DICHLOROETHANE		ND	1.
156-60-5	TRANS-1,2-DICHLOROETHENE		ND	1.
109-99-9	TETRAHYDROFURAN		ND	1.
75-69-4	TRICHLOROFLUOROMETHANE		ND	1.
76-13-1	FREON-TF		ND	1.
106-93-4	ETHYLENE DIBROMIDE		ND	1.
123-91-1	1,4-DIOXANE		ND	1.
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE		ND	1.
67-66-3	CHLOROFORM		ND	1.
107-06-2	1,2-DICHLOROETHANE		ND	1.
78-93-3	2-BUTANONE		ND	10.
71-55-6	1,1,1-TRICHLOROETHANE		110.	1.
16-23-5	CARBON TETRACHLORIDE		ND	1.
108-05-4	VINYL ACETATE		ND	5.
75-27-4	BROMODICHLOROMETHANE		ND	1.
79-34-5	1,1,2,2-TETRACHLOROETHANE		ND	1.
78-87-5	1,2-DICHLOROPROPANE		ND	1.
10061-02-6	TRANS-1,3-DICHLOROPROPENE		ND	1.
79-01-6	TRICHLOROETHENE		10.	1.
124-48-1	CHLORODIBROMOMETHANE		ND	1.
79-00-5	1,1,2-TRICHLOROETHANE		ND	1.
71-43-2	BENZENE		ND	1.
10061-01-5			ND	1.
110-75-8	2-CHLOROETHYLVINYLETHER		ND	10.
75-25-2	BROMOFORM		ND	1.
119-78-6	2-HEXANONE		ND	5.
108-10-1	4-METHYL-2-PENTANONE		54.	5.
127-18-4	TETRACHLOROETHENE		ND	1.
108-88-3	TOLUENE		80.	1.

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: MW-3A

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: 11/02/87 GCMS FILENAME: 7621V3 LEVEL: LOW MATRIX: WATER

DATE PREPARED: 11/11/87 DATE ANALYZED: 11/11/87 STANDARD ID: VOA608 INSTRUMENT ID: 5100

SAMPLE AMOUNT: 5UL

CAS #	COMPOUND	CONC:	UG/ML(PPM)	DETECTION LIMIT
108-90-7	CHLOROBENZENE		ND	1.
100-41-4	ETHYLBENZENE		ND	1.
100-42-5	STYRENE		ND	1.
95-47-6	TOTAL XYLENES		ND	1.
108-41-8	M-CHLOROTOLUENE		ND	1.
541-73-1	1,3-DICHLOROBENZENE		ND	1.
106-46-7	1,4-DICHLOROBENZENE		ND	1.
95-50-1	1.2-DICHLOROBENZENE		ND	1.

CLIENT: WOODWARD-CLYDE

SITE: DOUGLAS AIRCRAFT

SAMPLE: MW-3A

TENTATIVELY IDENTIFIED COMPOUNDS

COMPOUND NAME

FRACTION CONCENTRATION

UG/ML(PPM)

1 NONE FOUND

VOA

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: MW-4A

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

GCMS FILENAME: 7621V2 DATE RECEIVED: 11/02/87 LOW WATER MATRIX: LEVEL: DATE PREPARED: 11/11/87 DATE ANALYZED: 11/11/87 5100 STANDARD ID: **VOA608** INSTRUMENT ID:

SAMPLE AMOUNT: 5ML

CAS #	COMPOUND	CONC:	UG/L(PPB)	DETECTION LIMIT
74-87-3	CHLOROMETHANE		ND	5.
74-83-9	BROMOMETHANE		ND	5.
75-01-4	VINYL CHLORIDE		ND	5.
75-00-3	CHLOROETHANE		ND	5.
75-09-2	METHYLENE CHLORIDE		ND	10.
67-64-1	ACETONE		ND	10.
107-02-8	ACROLEIN		ND	10.
107-13-1	ACRYLONITRILE		ND	10.
75-15-0	CARBON DISULFIDE		ND	1.
75-35-4	1,1-DICHLOROETHENE		360.	1.
75-34-3	1,1-DICHLOROETHANE		ND	1.
156-60-5	TRANS-1,2-DICHLOROETHENE		2.	1.
109-99-9	TETRAHYDROFURAN		ND	1.
75-69-4	TRICHLOROFLUOROMETHANE		ND	1.
76-13-1	FREON-TF		ND	1.
106-93-4	ETHYLENE DIBROMIDE		ND	1.
123-91-1	1,4-DIOXANE		ND	1.
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE		ND	1.
67-66-3	CHLOROFORM		2.	1.
107-06-2	1,2-DICHLOROETHANE		ND	1.
78-93-3	2-BUTANONE		ND	10.
71-55-6	1,1,1-TRICHLOROETHANE		14.	1.
16-23-5	CARBON TETRACHLORIDE		ND	1.
108-05-4	VINYL ACETATE		ND	5.
75-27-4	BROMODICHLOROMETHANE		ND	1.
79-34-5	1,1,2,2-TETRACHLOROETHANE		ND	1.
78-87-5	1,2-DICHLOROPROPANE		ND	1.
10061-02-6	TRANS-1,3-DICHLOROPROPENE		ND	1.
79-01-6	TRICHLOROETHENE		700.	1.
124-48-1	CHLORODIBROMOMETHANE		ND	1.
79-00-5	1,1,2-TRICHLOROETHANE		ND	1.
71-43-2	BENZENE		ND	1.
10061-01-5	CIS-1,3-DICHLOROPROPENE		ND	1.
110-75-8	2-CHLOROETHYLVINYLETHER		ND	10.
75-25-2	BROMOFORM		ND	1.
119-78-6	2-HEXANONE		ND	5.
108-10-1	4-METHYL-2-PENTANONE		ND	5.
127-18-4	TETRACHLOROETHENE		ND	1.
108-88-3	TOLUENE		ND	1.

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: MW-4A

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: 11/02/87 GCMS FILENAME: 7621V2 WATER LOW LEVEL: MATRIX: DATE PREPARED: 11/11/87 DATE ANALYZED: 11/11/87 STANDARD ID: **VOA608** INSTRUMENT ID: 5100

SAMPLE AMOUNT: 5ML

CAS #	COMPOUND	CONC:	UG/L(PPB)	DETECTION LIMIT
108-90-7	CHLOROBENZENE	1=1222EEEE	ND	1.
100-41-4	ETHYLBENZENE		ND	1.
100-42-5	STYRENE		ND	1.
95-47-6	TOTAL XYLENES		ND	1.
108-41-8	M-CHLOROTOLUENE		ND	1.
541-73-1	1,3-DICHLOROBENZENE		ND	1.
106-46-7	1,4-DICHLOROBENZENE		ND	1.
95-50-1	1,2-DICHLOROBENZENE		ND	1.

CLIENT: WOODWARD-CLYDE

SITE: DOUGLAS AIRCRAFT SAMPLE: MW-4A

TENTATIVELY IDENTIFIED COMPOUNDS

COMPOUND NAME

FRACTION CONCENTRATION

UG/L(PPB)

1 CIS-1,2-DICHLOROETHYLENE

VOA

10.

Data Reporting Qualifiers

- Value If the result is a value greater than or equal to the Detection Limit (DL), the value is reported.
- ND Indicates that the compound was analyzed for but not detected. The minimum DL for the sample with the ND is reported based on necessary concentration or dilution actions.
- TR Indicates an estimated value. This flag is used when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the specified DL but greater than zero.

		Woo	dward-(Clyde Consult	ants (SHIPM	ENT NO.:
		С	HAIN OF	CUSTODY RECO	ORD		OF
•	PPO IE	OT MANGE.	Po	us/As		DATE	11 12187
	PROJEC	CT NO.:	97	418630 -	100	<u> </u>	
Sample Number	Location	Type of	Sample	Type of Container	Type	of Preservation	Analysis Required*
NW-2 A		Material Witch	Method Baylon		Temp	Chemical いっぺら	8240
1 11 B		Lece	Barten	blass Vial	FLEP	Pone	Hold
NW-3A						90	8240 -
1 1 B							Hold
nw - 4 A					11-		8240 -
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NW-3RB/A		1	1/	- 1	11/	2	Hold
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Total Number of S	Samples Sh	inned: E	Sampler	's Signature:	Bent	Church	
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Relinquished By:				Received By:		44	Date
Signature Printed Name				Signature Printed Name_			
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Reason Relinquished By:				Received By:			Date
Signature				Signature			
Printed Name Company				Printed Name_ Company			Time
Reason							
Spedial Shipment	/ Handling	/ Storage F	Requirement	s :			•
·- 							•
* Note - This do	oes not cor	nstitute auth	orization to	proceed with analy	sis		

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: WCC-1A

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: 11/13/87 GCMS FILENAME: 776172 MATRIX: LEVEL: LOW WATER DATE ANALYZED: 11/16/87
INSTRUMENT ID: 5101 DATE PREPARED: 11/16/87

STANDARD ID: V0A450

SAMPLE AMOUNT: 250UL

				DETECTION
CAS #	COMPOUND	CONC:	UG/L(PPB)	LIMIT

74-87-3	CHLOROMETHANE	ND	100.
74-83-9	BROMOMETHANE	ND	100.
75-01-4	VINYL CHLORIDE	ND	100.
75-00-3	CHLORDETHANE	ND	100.
75-09-2	METHYLENE CHLORIDE	ND	200.
67-64-1	ACETONE	ND	200.
107-02-8	ACROLEIN	ND	200.
107-13-1	ACRYLONITRILE	ND	200.
75-15-0	CARBON DISULFIDE	ND	20.
75-35-4	1,1-DICHLOROETHENE	3000.	20.
75~34-3	1,1-DICHLOROETHANE	23.	20.
156-60-5	TRANS-1, 2-DICHLOROETHENE	75. ·	20.
109-99-9	TETRAHYDROFURAN	ND	20.
75-69-4	TRICHLOROFLUOROMETHANE	ND	20 .
76-13-1	FREON-TF	ND	20.
106-93-4	ETHYLENE DIBROMIDE	ND	20.
123-91-1	1,4-DIOXANE	ND	20.
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	ND	20.
67-66-3	CHLOROFORM	39. ·	20.
107-06-2	1,2-DICHLOROETHANE	ND	20.
78-93-3	2-BUTANONE	ND	200.
71-55-6	1, 1, 1-TRICHLORGETHANE	160	20.
16-23-5	CARBON TETRACHLORIDE	ND	20.
108-05-4	VINYL ACETATE	ND	100.
75-27-4	BROMODICHLOROMETHANE	ND	20.
79-34-5	1, 1, 2, 2-TETRACHLOROETHANE	ND	20 .
78-87-5	1,2-DICHLOROPROPANE	ND	20.
10061-02-6	TRANS-1,3-DICHLOROPROPENE	ND	20.
79-01-6	TRICHLOROETHENE	5200. -	20.
124-48-1	DIBROMOCHLOROMETHANE	ND	20.
79~00-5	1, 1, 2-TRICHLOROETHANE	ND	20.
71-43-2	BENZENE	160.	20.
10061-01-5	CIS-1, 3-DICHLOROPROPENE	ND	20.
110-75-8	2-CHLOROETHYLVINYL ETHER	ND	200.
75-25-2	BROMOFORM	ND ND	20.
119-78-6 108-10-1	2-HEXANONE	ND ND	100. 100.
108-10-1	4-METHYL-2-PENTANONE TETRACHLOROETHENE	ND ND	20.
108-88-3		ND QN	20. 20.
100-00-3	TOLUENE	IND	EV.

CLIENT: WOODWARD-CLYDE

SITE:

DOUGLAS AIRCRAFT

SAMPLE: WCC-1A

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED:

11/13/87

GCMS FILENAME:

7761V2

LEVEL:

LOW

MATRIX:

WATER

DATE PREPARED:

11/16/87

DATE ANALYZED:

11/16/87

STANDARD ID:

VDA450

INSTRUMENT ID:

5101

SAMPLE AMOUNT:

250UL

DETECTION

CONC. LIG/L (PPR)

ITMIT

COMPOUND	CONC:		71111
2			
CHLOROBENZENE		ND	20.
ETHYLBENZENE		ND	20.
STYRENE		ND	20.
TOTAL XYLENES		ND	20.
M-CHLOROTOLUENE		ND	20.
1, 2-DICHLOROBENZENE		ND	20.
1.3-DICHLOROBENZENE		ND	20.
1,4-DICHLOROBENZENE		ND	20.
	CHLOROBENZENE ETHYLBENZENE STYRENE TOTAL XYLENES M-CHLOROTOLUENE 1, 2-DICHLOROBENZENE 1, 3-DICHLOROBENZENE	CHLOROBENZENE ETHYLBENZENE STYRENE TOTAL XYLENES M-CHLOROTOLUENE 1, 2-DICHLOROBENZENE 1, 3-DICHLOROBENZENE	CHLOROBENZENE ND ETHYLBENZENE ND STYRENE ND TOTAL XYLENES ND M-CHLOROTOLUENE ND 1, 2-DICHLOROBENZENE ND 1, 3-DICHLOROBENZENE ND

CLIENT: WOODWARD-CLYDE

SITE: DOUGLAS AIRCRAFT

SAMPLE: WCC-1A

TENTATIVELY IDENTIFIED COMPOUNDS

COMPOUND NAME

FRACTION CONCENTRATION

UG/L(PPB)

1 CIS-1, 2-DICHLORDETHYLENE

AGV

200.

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: WCC-2A

ANALYSIS TYPE: EPA METHOD 8240 (624)

DRGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: 11/13/87 GCMS FILENAME: 7761V4 LEVEL: LOW MATRIX: WATER

DATE PREPARED: 11/16/87 DATE ANALYZED: 11/16/87
STANDARD ID: VOA450 INSTRUMENT ID: 5101

SAMPLE AMOUNT: 5ML

DETECTION

CAS # COMPOUND CONC: UG/L(PPB) LIMIT

74-87-3	CHLOROMETHANE	ND	5 .
74-83-9	BROMOMETHANE	ND	5 .
75-01-4	VINYL CHLORIDE	ND	5 .
75 00-3	CHLOROETHANE	ND	5.
75-09-2	METHYLENE CHLORIDE	ND	10.
67-64-1	ACETONE	ND	10.
107-02-8	ACROLEIN	ND	10.
107-13-1	ACRYLONITRILE	ND	10.
75-15-0	CARBON DISULFIDE	ND	1.
75-35-4	1,1-DICHLOROETHENE	2.	1.
75-34-3	1,1-DICHLOROETHANE	ND	1.
154-60-5	TRANS-1, 2-DICHLOROETHENE	ND	1.
109-99-9	TETRAHYDROFURAN	ND	1.
75-69-4	TRICHLOROFLUOROMETHANE	ND	1.
76-13-1	FREON-TF	ND	1.
106-93-4	ETHYLENE DIBROMIDE	ND	1.
123-91-1	1,4-DIOXANE	ND	1.
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	ND	1.
67-66-3	CHLOROFORM	ND	1.
107-06-2	1.2-DICHLOROETHANE	ND	1.
78-93-3	2-BUTANONE	ND	10.
71-55-6	1, 1, 1-TRICHLOROETHANE	ND	1.
16-23-5	CARBON TETRACHLORIDE	ND	1.
108-05-4	VINYL ACETATE	ND	5.
75-27-4	BROMODICHLOROMETHANE	ND	1.
79-34-5	1, 1, 2, 2-TETRACHLOROETHANE	ND	1.
78-87-5	1,2-DICHLOROPROPANE	ND	1.
10061-02-6	TRANS-1.3-DICHLOROPROPENE	ND	1.
79-01-6	TRICHLOROETHENE	4.	1.
124-48-1	DIBROMOCHLOROMETHANE	ND	1.
79-00-5	1, 1, 2-TRICHLOROETHANE	ND	1.
71-43-2	BENZENE	ND	1.
10061-01-5	CIS-1,3-DICHLOROPROPENE	ND	1.
110-75-8	2-CHLOROETHYLVINYL ETHER	ND	10.
75-25-2	BROMOFORM	ND	<u>1</u> .
119-78-6	2-HEXANONE	ND	5 .
108-10-1	4-METHYL-2-PENTANONE	ND	5.
127-18-4	TETRACHLOROETHENE	ND	1.
108-88-3	TOLUENE	1.	1.

CLIENT: WOODWARD-CLYDE SITE:

DOUGLAS AIRCRAFT

SAMPLE: WCC-2A

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED:

11/13/87

GCMS FILENAME:

776174

LEVEL:

LOW

MATRIX:

WATER

DATE PREPARED:

11/16/87

11/16/87

STANDARD ID:

V0A450

DATE ANALYZED: INSTRUMENT ID:

5101

SAMPLE AMOUNT:

5ML

DETECTION

CAS #	COMPOUND	CONC:	UG/L(PPB)	LIMIT
	,	1 2 2 3 2 2 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4		· · · · · · · · · · · · · · · · · · ·
				_
108-90-7	CHLOROBENZENE		ND	1.
100-41-4	ETHYLBENZENE		ND	1.
100-42-5	STYRENE		ND	1.
95-47-6	TOTAL XYLENES		ND	1.
108-41-8	M-CHLOROTOLUENE		ND	1.
95-50-1	1,2-DICHLOROBENZENE		ND	1.
541-73-1	1,3-DICHLOROBENZENE		ND	1.
106-46-7	1, 4-DICHLOROBENZENE		ND	1.

CLIENT: WOODWARD-CLYDE

SITE:

DOUGLAS AIRCRAFT

SAMPLE: WCC-2A

TENTATIVELY IDENTIFIED COMPOUNDS

COMPOUND NAME

FRACTION CONCENTRATION

UG/L(PPB)

1 NONE FOUND

VOA

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT SAMPLE: WCC-3A

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: 11/13/87 GCMS FILENAME: 776176 LEVEL: MEDIUM MATRIX: WATER DATE PREPARED: DATE ANALYZED: 11/17/87 11/17/87 STANDARD ID: VDA451 INSTRUMENT ID: 5101

SAMPLE AMOUNT: 5じし

CAS #	COMPOUND		UG/ML(PPM)	DETECTION LIMIT
74 44 C 44 44 45 46 44 45 4		. = = = =		
74-87-3	CHLOROMETHANE		ND	5 .
74-83-9	BROMOMETHANE		ND	5.
75-01-4	VINYL CHLORIDE		ND	5.
75-00-3	CHLOROETHANE		ND	5 .
75-09-2	METHYLENE CHLORIDE		ND	10.
67-64-1	ACETONE		ND	10.
107-02-8	ACROLEIN		ND	10.
107-13-1	ACRYLONITRILE		ND	10.
75-15-0	CARBON DISULFIDE		ND	1.
75-35-4	1,1-DICHLOROETHENE		88. ·	1.
75-34-3	1,1-DICHLORDETHANE		1. •	1.
156-60-5	TRANS-1, 2-DICHLORDETHENE		1.	1.
109-99-9	TETRAHYDROFURAN		ND	1.
75-69-4	TRICHLOROFLUOROMETHANE		ND	1.
76-13-1	FREON-TF		ND	1.
106-93-4	ETHYLENE DIBROMIDE		ND	1.
123-91-1	1.4-DIDXANE		ND	1.
96-12-8	1.2-DIBROMO-3-CHLOROPROPANE		ND	1.
67-66-3	CHLOROFORM		ND	1.
107-06~2	1.2-DICHLOROETHANE		O. TR	1.
78-93-3	2-BUTANONE		5. TR	10.
71-55-6	1, 1, 1-TRICHLOROETHANE		54.	1.
16-23-5	CARBON TETRACHLORIDE		ND	1.
108-05-4	VINYL ACETATE		ND	5.
75-27-4	BROMODICHLOROMETHANE		ND	1.
79-34-5	1, 1, 2, 2-TETRACHLORDETHANE		ND	1.
78-87-5	1,2-DICHLOROPROPANE		ND	1.
10061-02-6	TRANS-1,3-DICHLOROPROPENE		ND	1.
79-01-6	TRICHLOROETHENE		11.	1.
124-48-1	DIBROMOCHLOROMETHANE		מא	1.
79-00-5	1,1,2-TRICHLORDETHANE		ND	1.
71-43-2	BENZENE		ND	1.
10061-01-5	CIS-1, 3-DICHLOROPROPENE		ND	1.
110-75-8	2-CHLORDETHYLVINYL ETHER		ND	10.
75-25-2	BROMOFORM		ND	<u>1</u> .
119-78-6	2-HEXANONE		ND	5. ~
108-10-1	4-METHYL-2-PENTANONE		70.	5 .
127-18-4	TETRACHLOROETHENE		ND	1.
108-88-3	TOLUENE		140.	1.

WOODWARD-CLYDE CLIENT: DOUGLAS AIRCRAFT SITE:

SAMPLE: WCC-3A

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED:

11/13/87

GCMS FILENAME:

776176

LEVEL:

MEDIUM

MATRIX:

WATER

DATE PREPARED: STANDARD ID:

11/17/87 VDA451

DATE ANALYZED:

11/17/87

SAMPLE AMOUNT:

INSTRUMENT ID: 5101

5UL

DETECTION

CAS #

COMPOUND

CONC: UG/ML(PPM) LIMIT

108-90-7	CHLOROBENZENE	ND	1.
100-41-4	ETHYLBENZENE	ND	1.
100-42-5	STYRENE	ND	1.
95-47-6	TOTAL XYLENES	ND	1.
108-41-8	M-CHLOROTOLUENE	ND	1.
95-50-1	1, 2-DICHLOROBENZENE	ND	1.
541-73-1	1,3-DICHLOROBENZENE	ND	1.
106-46-7	1,4-DICHLORORENZENE	ND	1.

CLIENT:

WOODWARD-CLYDE

SITE:

DOUGLAS AIRCRAFT

SAMPLE:

WCC-3A

TENTATIVELY IDENTIFIED COMPOUNDS

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COMPOUND NAME

FRACTION CONCENTRATION

UG/ML(PPM)

1 NONE FOUND

VOA

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: WCC-4A

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: 11/13/87 GCMS FILENAME: 7761V8 LEVEL: LDW MATRIX: WATER

DATE PREPARED: 11/17/87 DATE ANALYZED: 11/17/87

STANDARD ID: VDA451 INSTRUMENT ID: 5101

SAMPLE AMOUNT: 500UL

			DETECTION	
CAS #	COMPOUND	CONC: UG/L(PPB)	LIMIT	
2022-0-3-4-1				

74-87-3	CHLOROMETHANE	ND	50.
74-83-9	BROMOMETHANE	ND	50.
75-01-4	VINYL CHLORIDE	ND	50.
75-00-3	CHLOROETHANE	ND	5 0.
75-09-2	METHYLENE CHLORIDE	ND	100.
67-64-1	ACETONE	ND	100.
107-02-8	ACROLEIN	ND	100.
107-13-1	ACRYLONITRILE	ND	100.
75-15-0	CARBON DISULFIDE	ND	10.
75-35-4	1,1-DICHLOROETHENE	1200.	10.
75-34-3	1.1-DICHLOROETHANE	ND	10.
156-60-5	TRANS-1, 2-DICHLORDETHENE	ND	10.
109-99-9	TETRAHYDROFURAN	ND	10.
75-69-4	TRICHLOROFLUOROMETHANE	ND	10.
76-13-1	FREON-TF	ND	10.
106-93-4	ETHYLENE DIBROMIDE	ND	10.
123-91-1	1.4-DIOXANE	ND	10.
96-12-8	1.2-DIBROMO-3-CHLOROPROPANE	ND	10.
67-66-3	CHLOROFORM	ND	10.
107-06-2	1.2-DICHLORGETHANE	ND	10.
78-93-3	2-BUTANONE	ND	100.
71-55-6	1.1.1-TRICHLOROETHANE	35.	10.
16-23-5	CARBON TETRACHLORIDE	ND	10.
108-05-4	VINYL ACETATE	ND	5 0.
75-27-4	BROMODICHLOROMETHANE	ND	10.
79-34-5	1, 1, 2, 2-TETRACHLORGETHANE	ND	10.
78-87-5	1,2-DICHLOROPROPANE	ND	10.
10061-02-6	TRANS-1, 3-DICHLOROPROPENE	ND	10.
79-01-6	TRICHLOROETHENE	690 .	10.
124-48-1	DIBROMOCHLOROMETHANE	ND	10.
79-00-5	1,1,2-TRICHLOROETHANE	ND	10.
71-43-2	BENZENE	ND	10.
10061-01-5	CIS-1.3-DICHLOROPROPENE	ND	10.
110-75-8	2-CHLOROETHYLVINYL ETHER	ND	100.
75-25-2	BROMOFORM	ND	10.
119-78-6	2-HEXANONE	ND	50.
108-10-1	4-METHYL-2-PENTANONE	ND	50.
127-18-4	TETRACHLOROETHENE	ND	10. 10.
108-88-3	TOLUENE	ND	10.

CLIENT:

WOODWARD-CLYDE

SITE:

DOUGLAS AIRCRAFT

SAMPLE: WCC-4A

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED:

11/13/87

GCMS FILENAME:

7761V8

LEVEL:

LOW

MATRIX:

WATER

DATE PREPARED:

11/17/87 V0A451

DATE ANALYZED:

11/17/87

STANDARD ID:

INSTRUMENT ID: 5101

SAMPLE AMOUNT:

500UL

DETECTION

CAS # COMPOUND CONC: UG/L(PPB)

LIMIT

#== #=================================				
108-90-7	CHLOROBENZENE	ND	10.	
100-41-4	ETHYLBENZENE	ND	10.	
100-42-5	STYRENE	ND	10.	
95-47-6	TOTAL XYLENES	ND	10.	
108-41-8	M-CHLOROTOLUENE	ND	10.	
95-50-1	1,2-DICHLOROBENZENE	ND	10.	
541-73-1	1.3-DICHLOROBENZENE	ND	10.	
106-46-7	1.4-DICHLOROBENZENE	ND	10.	

CLIENT:

WOODWARD-CLYDE

SITE:

DOUGLAS AIRCRAFT

SAMPLE: WCC-4A

TENTATIVELY IDENTIFIED COMPOUNDS

COMPOUND NAME

FRACTION CONCENTRATION

UG/L(PPB)

1 NONE FOUND

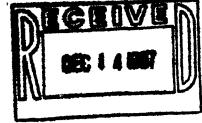
VOA

Data Reporting Qualifiers

- Value ~ If the result is a value greater than or equal to the Detection Limit (DL), the value is reported.
- ND Indicates that the compound was analyzed for but not detected. The minimum DL for the sample with the ND is reported based on necessary concentration or dilution actions.
- TR Indicates an estimated value. This flag is used when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the specified DL but greater than zero.

Woodward-Clyde Consultants SHIPMENT NO.:									
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				Douglas Aircraft			DATE ///387		
			_	, –		Tapox			
	PROJEC	CT NO.:		3741863			1		
Sample Number	Location	Type of Material	Sample Method	Type of Container	Type	of Preservation Chemical	Analys	is Required*	
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Total Number of S	Samples Shi	pped: 8	Sampler	s Signature:		not	_		
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Printed Name				Printed Name				Time	
Company Reason				Company					
Special Shipment / Handling / Storage Requirements:									
* Note — This do	es not cons	stitute autho	orization to	proceed with analysi	s				
							LA	A/OR-0183-421	

December 11, 1987



WEST COAST **ANALYTICAL**

ANALYTICAL CHEMIST.

WOODWARD-CLYDE 203 N. Golden Circle Drive Santa Ana, CA 92705

Attn: Allistaire Callendar

JOB NO. 7911

LABORATORY REPORT

Samples Received: Three (3) liquid samples

Date Received: 11-30-87

Purchase Order No: Proj: 8741863D-1000

The samples were analyzed as follows:

Samples Analyzed

<u>Analysis</u>

Results

One water

Fuel Hydrocarbons

by modified EPA 8015

Table I

One water

Volatile Organics

by EPA 8240

Data Sheets

TABLE I

Parts Per Million

Sample No.	<u>Gasoline</u>	Diesel <u>Fuel</u>	<u>Kerosene</u>	Mineral Spirits
WCC-5A	ND	ND	ND	ND
Detection Limit	2	2	2	2

ND - Not Detected

Date Analyzed: 12-10-87

Page 1 of 1

James Bonde Senior Chemist

J. Northington, Ph. D. Technical Director

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: WCC-5A

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: GCMS FILENAME: 12/01/87 7911V1 LEVEL: LOW MATRIX: WATER DATE PREPARED: 12/09/87 DATE ANALYZED: 12/09/87 STANDARD ID: **VOA626** INSTRUMENT ID: 5100

SAMPLE AMOUNT: 5ML

67-64-1 ACETONE 107-02-8 ACROLEIN 107-13-1 ACRYLONITRILE 71-43-2 BENZENE		ND ND ND ND ND	10. 10. 10.
107-02-8 ACROLEIN 107-13-1 ACRYLONITRILE		ND ND ND	10. 10.
107-13-1 ACRYLONITRILE		ND ND	10.
		ND	
71-43-2 BENZENE			1
		ND	 •
75-27-4 BROMODICHLOROMETHANE		-112	1.
75-25-2 BROMOFORM		ND	1.
74-83-9 BROMOMETHANE		ND	5.
78-93-3 2-BUTANONE (MEK)		ND	10.
75-15-0 CARBON DISULFIDE		ND	1.
16-23-5 CARBON TETRACHLORIDE		ND	1.
108-90-7 CHLOROBENZENE		ND	1.
75-00-3 CHLOROETHANE		ND	5.
110-75-8 2-CHLOROETHYLVINYLETHER		ND	10.
67-66-3 CHLOROFORM		ND	1.
74-87-3 CHLOROMETHANE		ND	5.
108-41-8 M-CHLOROTOLUENE		ND	1.
124-48-1 DIBROMOCHLOROMETHANE		ND	1.
96-12-8 1,2-DIBROMO-3-CHLOROPROPANE		ND	5.
95-50-1 1,2-DICHLOROBENZENE		ND	1.
541-73-1 1,3-DICHLOROBENZENE		ND	1.
106-46-7 1,4-DICHLOROBENZENE		ND	1.
75-34-3 1,1-DICHLOROETHANE		ND	1.
107-06-2 1,2-DICHLOROETHANE		ND	1.
75-35-4 1,1-DICHLOROETHYLENE		7.	1.
156-60-5 TRANS-1, 2-DICHLOROETHYLENE		ND	1.
78-87-5 1,2-DICHLOROPROPANE		ND	1.
10061-01-5 CIS-1,3-DICHLOROPROPENE		ND	1.
10061-02-6 TRANS-1,3-DICHLOROPROPENE		ND	1.
123-91-1 1,4-DIOXANE		ND	20.
100-41-4 ETHYLBENZENE		ND	1.
106-93-4 ETHYLENE DIBROMIDE		ND	1.
76-13-1 FREON-TF		ND	1.
119-78-6 2-HEXANONE		ND	5.
75-09-2 METHYLENE CHLORIDE	•	ND	10.
108-10-1 4-METHYL-2-PENTANONE (MIBK)		ND	5.
100-42-5 STYRENE		ND	1.
79-34-5 1,1,2,2-TETRACHLOROETHANE		ND	1.
127-18-4 TETRACHLOROETHYLENE		ND	1.
109-99-9 TETRAHYDROFURAN		ND	1.

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: WCC-5A

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: 12/01/87 GCMS FILENAME: 7911V1 LEVEL: LOW MATRIX: WATER DATE PREPARED: 12/09/87 DATE ANALYZED: 12/09/87 STANDARD ID: VOA626 INSTRUMENT ID: 5100

SAMPLE AMOUNT: 5ML

CAS #	COMPOUND	CONC:	UG/L(PPB)	DETECTION LIMIT
108-88-3	TOLUENE		•	2
71-55-6			1.	1.
	1,1,1-TRICHLOROETHANE		ND	1.
79-00-5	1,1,2-TRICHLOROETHANE		ND	1.
79-01-6	TRICHLOROETHYLENE		3.	1.
75-69-4	TRICHLOROFLUOROMETHANE		ND	1.
108-05-4	VINYL ACETATE		ND	5.
75-01-4	VINYL CHLORIDE		ND	5.
95-47-6	TOTAL XYLENES			J.
JJ 47-0	TOTAL VITCHED		ND	1.

CLIENT: WOODWARD-CLYDE

SITE:

DOUGLAS AIRCRAFT

SAMPLE: WCC-5A

TENTATIVELY IDENTIFIED COMPOUNDS

COMPOUND NAME

FRACTION CONCENTRATION

UG/L(PPB)

1 NONE FOUND

VOA

Data Reporting Qualifiers

- Value If the result is a value greater than or equal to the Detection Limit (DL), the value is reported.
- ND Indicates that the compound was analyzed for but not detected. The minimum DL for the sample with the ND is reported based on necessary concentration or dilution actions.
- TR Indicates an estimated value. This flag is used when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the specified DL but greater than zero.

Printed Name Wich Thomas Printed Name Printed Name Time Time Printed Name Printed			Woo	dward-(Clyde Consu	Itants (SHIPM	ENT NO).:
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LA/OR-0183-421

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: WCC-5A

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: 01/08/88 GCMS FILENAME: 8253V1 LEVEL: WATER LOW MATRIX: DATE PREPARED: 01/12/88 DATE ANALYZED: 01/12/88 STANDARD ID: **VOA484** INSTRUMENT ID: 5101

SAMPLE AMOUNT: 5ML

CAS #	COMPOUND	CONC:	UG/L(PPB)	DETECTION LIMIT
67-64-1	ACETONE		ND	10.
107-02-8	ACROLEIN		ND	10.
107-13-1	ACRYLONITRILE		ND	10.
71-43-2	BENZENE		ND	1.
75-27-4	BROMODICHLOROMETHANE		ND	1.
75-25-2	BROMOFORM		ND	1.
74-83-9	BROMOMETHANE		ND	5.
78-93-3	2-BUTANONE (MEK)		ND	10.
75-15-0	CARBON DISULFIDE		ND	1.
16-23-5	CARBON TETRACHLORIDE		ND	1.
108-90-7	CHLOROBENZENE		ND	1.
75-00-3	CHLOROETHANE		ND	5.
110-75-8	2-CHLOROETHYLVINYL ETHER		ND	10.
67-66-3	CHLOROFORM		ND	1.
74-87-3	CHLOROMETHANE		ND	5.
108-41-8	M-CHLOROTOLUENE		ND	1.
124-48-1	DIBROMOCHLOROMETHANE		ND	1.
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE		ND	5.
95-50-1	1,2-DICHLOROBENZENE		ND	1.
541-73-1	1,3-DICHLOROBENZENE		ND	1.
106-46-7	1,4-DICHLOROBENZENE		ND	1.
75-34-3	1,1-DICHLOROETHANE		ND	1.
107-06-2	1,2-DICHLOROETHANE		ND	1.
75-35-4	1,1-DICHLOROETHYLENE		4.	1.
156-60-5	TRANS-1,2-DICHLOROETHYLENE		ИD	1.
78-87 - 5	1,2-DICHLOROPROPANE		ND	1.
10061-01-5	CIS-1,3-DICHLOROPROPENE		ND	1.
10061-02-6	TRANS-1,3-DICHLOROPROPENE		ND	1.
123-91-1	1,4-DIOXANE		ND	20.
100-41-4	ETHYLBENZENE		ND	1.
106-93-4	ETHYLENE DIBROMIDE		ND	1.
76-13-1	FREON-TF		ND	1.
119-78-6	2-HEXANONE		ND	5.
75-09-2	METHYLENE CHLORIDE		ND	10.
108-10-1	4-METHYL-2-PENTANONE (MIBK)		ND	5.
100-42-5	STYRENE		ИD	1.
79-34-5	1,1,2,2-TETRACHLOROETHANE		ND	1.
127-18-4	TETRACHLOROETHYLENE		ND	1.
109-99-9	TETRAHYDROFURAN		ИD	1.

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: WCC-5A

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: 01/08/88 GCMS FILENAME: 8253V1 LEVEL: LOW MATRIX: WATER DATE PREPARED: 01/12/88 DATE ANALYZED: 01/12/88 STANDARD ID: VOA484 INSTRUMENT ID: 5101

SAMPLE AMOUNT: 5ML

CAS #	COMPOUND	CONC:	UG/L(PPB)	DETECTION LIMIT
108-88-3	TOLUENE		ND	1.
71-55-6	1,1,1-TRICHLOROETHANE		ND	1.
79-00-5	1,1,2-TRICHLOROETHANE		ND	1.
79-01-6	TRICHLOROETHYLENE		10.	1.
75-69-4	TRICHLOROFLUOROMETHANE		ND	1.
108-05-4	VINYL ACETATE		ND	5.
75-01-4	VINYL CHLORIDE		ND	5.
95-47-6	TOTAL XYLENES		ND	1.

CLIENT: WOODWARD-CLYDE

SITE: DOUGLAS AIRCRAFT

SAMPLE: WCC-5A

TENTATIVELY IDENTIFIED COMPOUNDS

COMPOUND NAME

FRACTION CONCENTRATION

UG/L(PPB)

1 CIS-1,2-DICHLOROETHYLENE

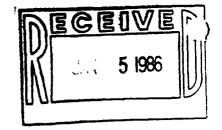
VOA

4.

Data Reporting Qualifiers

- Value If the result is a value greater than or equal to the Detection Limit (DL), the value is reported.
- ND Indicates that the compound was analyzed for but not detected. The minimum DL for the sample with the ND is reported based on necessary concentration or dilution actions.
- TR Indicates an estimated value. This flag is used when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the specified DL but greater than zero.

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	Location	Material	Method			Temp	Chemical		Analysis Re	quirea
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December 31, 1986

WOODWARD-CLYDE 203 No. Golden Circle Drive Santa Ana, CA 92705

Attn: Kevin Gibson

JOB NO. 4932



ANALYTICAL CHEMISTS

LABORATORY REPORT

Samples: Two (2) soil samples

Date Received: 12-29-86

Purchase Order No: Project 41863B

The samples were analyzed for total petroleum hydrocarbon content using EPA method 418.1. The results are listed below:

Parts Per Million

Sample No.

Total Petroleum Hydrocarbons

B2-2-3 at 5' B2-7-3 at 30' Detection Limit 5000

6000

10

Date Analyzed: 12-30-86

Page 1 of 1

Isabella Gundran Chemist D.J. Northington, Ph.D.
Technical Director

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	PROJE	CT NO.:		777635				
Sample Number	Location	Material	Sample Method	Type of Container	Type	of Preservation Chemical	Analysis Require	ed*
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JAN 1 2 1986

January 9, 1987

WOODWARD-CLYDE 203 N. Golden Circle Drive Santa Ana, CA 92705

Attn: Kevin Gibson

JOB NO. 4968



ANALYTICAL CHEMISTS

LABORATORY REPORT

Samples: Nineteen (19) soil samples

Date Received: 1-6-87
Purchase Order No: 41863B

Ten (10) samples were analyzed for total petroleum hydrocarbons by EPA method 418.1. The results are reported below:

Parts Per Million

Sample.No.	Total Petroleum Hydrocarbons
2-7-4 2-8-4 2-9-4 2-10-4 3-1-4	14000 2000 2000 19000 2900
3-2-4 3-3-4 3-4-4 3-5-3 3-6-3 Detection Limit	27 1200 4400 13000 4100

Page 1 of 1

Isabelle Gundran Chemist.

Date Extracted: 1-8-87
Date Analyzed: 1-8-87

D.J. Northington, Ph.D. Technical Director

Woodward-Clyde Consultants



CHAIN OF CUSTODY RECORD

SHIPMENT	NO.:
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DOUGLAS ATRICRACT PROJECT NAME:_

* Note — This does not constitute authorization to proceed with analysis

DATE 1 16/87

418630 #4968 PROJECT NO.:____ Type of Sample Type of Preservation Sample Number Analysis Required* Location Type of Container Temp Material Method Chemical HOLD **-7-3** BARSSTUDE B-2 SOIL 15% EPA. 418.1. 418.1 TPAC 418,1 TPHC B-3 418.1 JPMC HOLD 418.1 TPHE HOLD 3-3-3 UIR! TPHE ون کم 418.1 TPAC Hopo 418.178HX 3-5-43 3-6-2 JIS, 1 TPHE Total Number of Samples Shipped: Sampler's Signature: ing woulder $\mathsf{Dat}\epsilon$ Relinquished By: Received By: Margaret Felt 116/87 Signature_ Signature___ KEUN R. GIBSON Printed Name | Margaret Falt Printed Name_ Time WCC Company_ Company___ TESTING Reason_ Date Relinquished By: Received By: Signature_ Signature_ Printed Name___ Printed Name_ Time Company__ Company_ Reason_ Relinquished By: Received By: Date Signature_ Signature_ Printed Name___ Printed Name__ Time Company__ Company___ Reason_ Relinquished By: Received By: Date Signature_ Signature_ Printed Name ___ Printed Name___ Time Company___ Company_ Reason Special Shipment / Handling / Storage Requirements:

LA/OR-0183-421

June 5, 1987

WOODWARD-CLYDE 203 N. Golden Circle Drive Santa Ana, CA 92705

Attn: Allistaire Callendar

JOB NO. 6039



ANALYTICAL CHEMISTS

LABORATORY REPORT

Samples: Seventeen (17) soil samples

Date Received: 5-27-87
Purchase Order No: 41863B

Nine (9) soil samples were analyzed for total petroleum hydrocarbon content using EPA Method 418.1. The results are on Table I.

Table I

Parts Per Million

Sample No. Total Petroleum Hydrocarbon

B-4-1-2	ND
B-4-2-2	15000
B-4-3-2	44000
B-4-4-2	8200
B-4-5-2	28000
B-4-6-2	6000
B-4-7-2	1500
B-4-9-2	16000
B-4-10-2	ND
Detection Limit:	10

ND - Not Detected

Date Analyzed: 6-4-87

Page 1 of 1

Isabelle Gundran Analytical Chemist

D.J. Northington, Ph.D. Technical Director

9840 Alburtis Avenue • Santa Fe Springs, California 90670 • 213/948-2225

		Woo	odward-	Clyde Consult	ants (SHIP	MENT NO.:
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	PROJE	CT NAME:	<u> </u>	C AIRCRAFT		DATE	5 1261 86
	PROJE		41863E	>			
Sample Number	Location	Type of Material	Sample Method	Type of Container		of Preservation	Analysis Required*
B-41-2.	-B-4			BEASS TUBE	Temp	Chemical	
8-4-1-3-	[BY ALLEGARG
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8-4-3-2	- 	 			╂╼╂╼-	 	(714)835-688
B-4-3-3-					╂╌╂╌╸		
3-4-4-2-							
B-4-4-3-							
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B-4-6-2-					 		
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CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: 15TB-3-3

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: 6926V1 08/24/87 GCMS FILENAME: LEVEL: LOW MATRIX: SOIL DATE PREPARED: DATE ANALYZED: 09/01/87 09/01/87 STANDARD ID: **VOA397** INSTRUMENT ID: 5101

CAS #	COMPOUND	CONC:	UG/KG(PPB)	DETECTION LIMIT
74-87-3	CHLOROMETHANE		ND	30.
74-83-9	BROMOMETHANE		ND	30.
75-01-4	VINYL CHLORIDE		ND	30.
75-00-3	CHLOROETHANE		ND	30.
75-09-2	METHYLENE CHLORIDE		ND	50.
67-64-1	ACETONE		ND	50.
107-02-8	ACROLEIN		ND	50.
107-13-1	ACRYLONITRILE		ND	50.
75-15-0	CARBON DISULFIDE		ND	5.
75-35-4	1,1-DICHLOROETHENE		18.	5.
75-34-3	1,1-DICHLOROETHANE		ND	5.
156-60-5	TRANS-1,2-DICHLOROETHENE		ND	5.
109-99-9	TETRAHYDROFURAN		ND	5.
75-69-4	TRICHLOROFLUOROMETHANE		ND	5.
76-13-1	FREON-TF		ND	5.
106-93-4	ETHYLENE DIBROMIDE		ND	5.
123-91-1	1,4-DIOXANE		ND	5.
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE		ND	5.
67-66-3	CHLOROFORM		ND	5.
107-06-2	1,2-DICHLOROETHANE		ND	5.
78-93-3	2-BUTANONE		ND	50.
71-55-6	1,1,1-TRICHLOROETHANE		570.	5.
16-23-5	CARBON TETRACHLORIDE		ND	5.
108-05-4	VINYL ACETATE		ND	30.
75-27-4	BROMODICHLOROMETHANE		ND	5.
79-34-5	1,1,2,2-TETRACHLOROETHANE		ND	5.
78-87-5	1,2-DICHLOROPROPANE		ND	5.
10061-02-6	TRANS-1,3-DICHLOROPROPENE		ND	5.
79-01-6	TRICHLOROETHENE		ND	5.
124-48-1	DIBROMOCHLOROMETHANE		ND	5.
79-00-5	1,1,2-TRICHLOROETHANE		ND	5.
71-43-2	BENZENE		ND	5.
10061-01-5	CIS-1,3-DICHLOROPROPENE		ND	5.
110-75-8	2-CHLOROETHYLVINYL ETHER		ND	50.
75-25-2	BROMOFORM		ND	5.
119-78-6	2-HEXANONE		ND	30.
108-10-1	4-METHYL-2-PENTANONE		ND	30.
127-18-4	TETRACHLOROETHENE		ND	5.
108-88-3	TOLUENE		56.	5.

CLIENT:

WOODWARD-CLYDE

SITE:

DOUGLAS AIRCRAFT

SAMPLE: 15TB-3-3

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED:

08/24/87

GCMS FILENAME:

6926V1

LEVEL:

LOW

MATRIX:

SOIL

DATE PREPARED:

09/01/87

DATE ANALYZED:

09/01/87

STANDARD ID:

VOA397

INSTRUMENT ID:

5101

SAMPLE AMOUNT:

1.0G

CAS #	COMPOUND	CONC: UG/KG(PP	DETECTION B) LIMIT
108-90-7	CHLOROBENZENE		5.
100-41-4	ETHYLBENZENE	11.	5.
100-42-5	STYRENE	ND	5.
95-47-6	TOTAL XYLENES	110.	5.
108-41-8	M-CHLOROTOLUENE	ND	5.
95-50-1	1,2-DICHLOROBENZENE	ND	5.
541-73-1	1,3-DICHLOROBENZENE	ND	5.
106-46-7	1,4-DICHLOROBENZENE	ND	5.

CLIENT: WOODWARD-CLYDE

SITE: DOUGLAS AIRCRAFT SAMPLE: 15TB-3-3

TENTATIVELY IDENTIFIED COMPOUNDS

COMPOUND NAME FRACTION CONCENTRATION UG/KG(PPB)

1 CHLORINATED HYDROCARBONS

VOA

300.

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: 15TB-4-3

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: 08/24/87 GCMS FILENAME: 6926V7
LEVEL: MEDIUM MATRIX: SOIL
DATE PREPARED: 09/01/87 DATE ANALYZED: 09/01/87

STANDARD ID: VOA397 INSTRUMENT ID: 5101

SAMPLE AMOUNT: 1.0G:1ML,200UL:1ML,5

CAS #	COMPOUND	CONC:	UG/G(PPM)	DETECTION LIMIT
74-87-3	CHLOROMETHANE		ND	30.
74-83-9	BROMOMETHANE		ND	30.
75-01-4	VINYL CHLORIDE		ND	30.
75-00-3	CHLOROETHANE		ND	30.
75-09-2	METHYLENE CHLORIDE		ND	50.
67-64-1	ACETONE		ND	50.
107-02-8	ACROLEIN		ND	50.
107-13-1	ACRYLONITRILE		ND	50.
75-15-0	CARBON DISULFIDE		ND	5.
75-35-4	1,1-DICHLOROETHENE		ND	5.
75-34-3	1,1-DICHLOROETHANE	•	ND	5.
156-60-5	TRANS-1,2-DICHLOROETHENE		ND	5.
109-99-9	TETRAHYDROFURAN		ND	5.
75-69-4	TRICHLOROFLUOROMETHANE		ND	5.
76-13-1	FREON-TF		ND	5.
106-93-4	ETHYLENE DIBROMIDE		ND	5.
123-91-1	1,4-DIOXANE		ND	5.
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE		ND	5.
67-66-3	CHLOROFORM		ND	5.
107-06-2	1,2-DICHLOROETHANE		ND	5.
78-93-3	2-BUTANONE		160.	50.
71-55-6	1,1,1-TRICHLOROETHANE		27.	5.
16-23-5	CARBON TETRACHLORIDE		ND	5.
108-05-4	VINYL ACETATE		ND	30.
75-27-4	BROMODICHLOROMETHANE		ND	5.
79-34-5	1,1,2,2-TETRACHLOROETHANE		ND	5.
78-87-5	1,2-DICHLOROPROPANE		ND	5.
10061-02-6	TRANS-1,3-DICHLOROPROPENE		ND	5.
79-01-6	TRICHLOROETHENE		10.	5.
124-48-1	DIBROMOCHLOROMETHANE		ND	5.
79-00-5	1,1,2-TRICHLOROETHANE		ND	5.
71-43-2	BENZENE		ND	5.
10061-01-5	CIS-1,3-DICHLOROPROPENE		ND	5.
110-75-8	2-CHLOROETHYLVINYL ETHER		ND	50.
75-25-2	BROMOFORM		ND	5.
119-78-6	2-HEXANONE		ND	30.
108-10-1	4-METHYL-2-PENTANONE		ND	30.
127-18-4	TETRACHLOROETHENE		ND	5.
108-88-3	TOLUENE		870.	5.

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: 15TB-4-3

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: 08/24/87 GCMS FILENAME: 6926V7 LEVEL: MEDIUM MATRIX: SOIL

DATE PREPARED: 09/01/87 DATE ANALYZED: 09/01/87 STANDARD ID: VOA397 INSTRUMENT ID: 5101

SAMPLE AMOUNT: 1.0G:1ML,200UL:1ML,5

CAS #	COMPOUND	CONC: UG/G(P	DETECTION LIMIT
108-90-7	CHLOROBENZENE		ND 5.
100-41-4	ETHYLBENZENE	41.	5.
100-42-5	STYRENE	1	ND 5.
95-47-6	TOTAL XYLENES	460.	5.
108-41-8	M-CHLOROTOLUENE	1	ND 5.
95-50-1	1,2-DICHLOROBENZENE		ND 5.
541-73-1	1,3-DICHLOROBENZENE	:	ND 5.
106-46-7	1.4-DICHLOROBENZENE		ND 5.

CLIENT: WOODWARD-CLYDE

SITE: DOUGLAS AIRCRAFT SAMPLE: 15TB-4-3

TENTATIVELY IDENTIFIED COMPOUNDS

COMPOUND NAME

FRACTION CONCENTRATION

UG/G(PPM)

1 NONE FOUND

VOA

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: 15TB-5-3

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: 08/24/87 GCMS FILENAME: 6926V8
LEVEL: MEDIUM MATRIX: SOIL
DATE PREPARED: 09/01/87 DATE ANALYZED: 09/01/87
STANDARD ID: VOA397 INSTRUMENT ID: 5101

SAMPLE AMOUNT: 1.0G:1ML,100UL:1ML,5

CAS #	COMPOUND	CONC:	UG/G(PPM)	DETECTION LIMIT
74-87-3	CHLOROMETHANE		ND	50.
74-83-9	BROMOMETHANE		ND	50.
75-01-4	VINYL CHLORIDE		ND	50.
75-00-3	CHLOROETHANE		ND	50.
75-09-2	METHYLENE CHLORIDE		ND	100.
67-64-1	ACETONE		ND	100.
107-02-8	ACROLEIN		ND	100.
107-13-1	ACRYLONITRILE		ND	100.
75-15-0	CARBON DISULFIDE		ND	10.
75-35-4	1,1-DICHLOROETHENE		ND	10.
75-34-3	1,1-DICHLOROETHANE		ИD	10.
156-60-5	TRANS-1,2-DICHLOROETHENE		ND	10.
109-99-9	TETRAHYDROFURAN		ND	10.
75-69-4	TRICHLOROFLUOROMETHANE		ND	10.
76-13-1	FREON-TF		ND	10.
106-93-4	ETHYLENE DIBROMIDE		ND	10.
123-91-1	1,4-DIOXANE		ND	10.
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE		ND	10.
67-66-3	CHLOROFORM		ND	10.
107-06-2	1,2-DICHLOROETHANE		ND	10.
78-93-3	2-BUTANONE		1800.	100.
71-55-6	1,1,1-TRICHLOROETHANE		38.	10.
16-23-5	CARBON TETRACHLORIDE		ND	10.
108-05-4	VINYL ACETATE		ND	50.
75-27-4	BROMODICHLOROMETHANE		ND	10.
79-34-5	1,1,2,2-TETRACHLOROETHANE	•	ND	10.
78-87-5	1,2-DICHLOROPROPANE		ND	10.
10061-02-6	TRANS-1,3-DICHLOROPROPENE		ND	10.
79-01-6	TRICHLOROETHENE		94.	10.
124-48-1	DIBROMOCHLOROMETHANE		ND	10.
79-00-5	1,1,2-TRICHLOROETHANE		ND	10.
71-43-2	BENZENE		ND	10.
10061-01-5	CIS-1,3-DICHLOROPROPENE		ND	10.
110-75-8	2-CHLOROETHYLVINYL ETHER		ND	100.
75-25-2	BROMOFORM		ND	10.
119-78-6	2-HEXANONE		ND	50.
108-10-1	4-METHYL-2-PENTANONE		ND	50.
127-18-4	TETRACHLOROETHENE		ND	10.
108-88-3	TOLUENE		6300.	10.

CLIENT:

WOODWARD-CLYDE

SITE:

DOUGLAS AIRCRAFT

SAMPLE:

15TB-5-3

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED:

08/24/87

GCMS FILENAME:

6926V8

LEVEL:

MEDIUM

MATRIX:

SOIL

DATE PREPARED:

09/01/87

DATE ANALYZED: 09/01/87

STANDARD ID:

VOA397

INSTRUMENT ID: 5101

SAMPLE AMOUNT:

1.0G:1ML,100UL:1ML,5

CAS #	COMPOUND	CONC:	UG/G(PPM)	DETECTION LIMIT
108-90-7	CHLOROBENZENE		ND	10.
100-41-4	ETHYLBENZENE		180.	10.
100-42-5	STYRENE		ND	10.
95-47-6	TOTAL XYLENES		1300.	10.
108-41-8	M-CHLOROTOLUENE		ND	10.
95-50-1	1,2-DICHLOROBENZENE		ND	10.
541-73-1	1,3-DICHLOROBENZENE		ND	10.
106-46-7	1.4-DICHLOROBENZENE		ND	10.

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: 15TB-5-3

TENTATIVELY IDENTIFIED COMPOUNDS

COMPOUND NAME FRACTION CONCENTRATION UG/G(PPM)

1 NONE FOUND

VOA

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: 17TB-2-3

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: 08/24/87 GCMS FILENAME: 6926V2 LEVEL: LOW MATRIX: SOIL DATE PREPARED: 09/01/87 DATE ANALYZED: 09/01/87 STANDARD ID: VOA397 INSTRUMENT ID: 5101

CAS #	COMPOUND	CONC:	UG/KG(PPB)	DETECTION LIMIT
74-87-3	CHLOROMETHANE	======	ND	30.
74-83-9	BROMOMETHANE		ND	30.
75-01-4	VINYL CHLORIDE		ND	30.
75-00-3	CHLOROETHANE		ND	30.
75-09-2	METHYLENE CHLORIDE		ND	50.
67-64-1	ACETONE		ND	50.
107-02-8	ACROLEIN		ND	50.
107-13-1	ACRYLONITRILE		ND	50.
75-15-0	CARBON DISULFIDE		ND	5.
75-35-4	1,1-DICHLOROETHENE		ND	5.
75-34-3	1,1-DICHLOROETHANE		ND	5.
156-60-5	TRANS-1,2-DICHLOROETHENE		ND	5.
109-99-9	TETRAHYDROFURAN		ND	5.
75-69-4	TRICHLOROFLUOROMETHANE		ND	5.
76-13-1	FREON-TF		ND	5.
106-93-4	ETHYLENE DIBROMIDE		ND	5.
123-91-1	1,4-DIOXANE		ND	5.
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE		ND	5.
67-66-3	CHLOROFORM		ND	5.
107-06-2	1,2-DICHLOROETHANE		ND	5.
78-93-3	2-BUTANONE		ND	50.
71-55-6	1,1,1-TRICHLOROETHANE		ND	5.
16-23-5	CARBON TETRACHLORIDE		ND	5.
108-05-4	VINYL ACETATE		ND	30.
75-27-4	BROMODICHLOROMETHANE		ND	5.
79-34-5	1,1,2,2-TETRACHLOROETHANE		ND	5.
78-87-5	1,2-DICHLOROPROPANE		ND	5.
10061-02-6	•		ND	5.
79-01-6	TRICHLOROETHENE		ND	5.
124-48-1	DIBROMOCHLOROMETHANE		ND	5.
79-00-5	1,1,2-TRICHLOROETHANE		ND	5.
71-43-2	BENZENE		ND	5.
10061-01-5	CIS-1,3-DICHLOROPROPENE		ND	5.
110-75-8	2-CHLOROETHYLVINYL ETHER		ND	50.
75-25-2	BROMOFORM		ND	5.
119-78-6	2-HEXANONE		ND	30.
108-10-1	4-METHYL-2-PENTANONE		ND	30.
127-18-4	TETRACHLOROETHENE		ND	5.
108-88-3	TOLUENE		ND	5.

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: 17TB-2-3

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: 08/24/87 GCMS FILENAME: 6926V2 LEVEL: LOW MATRIX: SOIL DATE PREPARED: 09/01/87 DATE ANALYZED: 09/01/87

STANDARD ID: VOA397 INSTRUMENT ID: 5101

CAS #	COMPOUND	CONC:	UG/KG(PPB)	DETECTION LIMIT
108-90-7	CHLOROBENZENE		ND	5.
100-41-4	ETHYLBENZENE		ND	5.
100-42-5	STYRENE		ND	5.
95-47-6	TOTAL XYLENES		ND	5.
108-41-8	M-CHLOROTOLUENE		ND	5.
95-50-1	1,2-DICHLOROBENZENE		ND	5.
541-73-1	1,3-DICHLOROBENZENE		ND	5.
106-46-7	1,4-DICHLOROBENZENE		ND	5.

CLIENT: WOODWARD-CLYDE

SITE: DOUGLAS AIRCRAFT

SAMPLE: 17TB-2-3

TENTATIVELY IDENTIFIED COMPOUNDS

COMPOUND NAME

FRACTION CONCENTRATION

UG/KG(PPB)

1 NONE FOUND

VOA

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: 17TB-3-3

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: 08/24/87 GCMS FILENAME: 6926V3 LEVEL: LOW MATRIX: SOIL DATE PREPARED: 09/01/87 DATE ANALYZED: 09/01/87

DATE PREPARED: 09/01/87 DATE ANALYZED: 09/01/8 STANDARD ID: VOA397 INSTRUMENT ID: 5101

CAS #	COMPOUND	CONC:	UG/KG(PPB)	DETECTION LIMIT
74-87-3	CHLOROMETHANE	، جه به ه ه به سم هم هم	.ND	30.
74-83-9	BROMOMETHANE		ND	30.
75-01-4	VINYL CHLORIDE		ND	30.
75-00-3	CHLOROETHANE		ND	30.
75-09-2	METHYLENE CHLORIDE		ND	50.
67-64-1	ACETONE		ND	50.
107-02-8	ACROLEIN		ND	50.
107-13-1	ACRYLONITRILE		ND	50.
75-15-0	CARBON DISULFIDE		ND	5.
75-35-4	1,1-DICHLOROETHENE		ND	5.
75-34-3	1,1-DICHLOROETHANE		ND	5.
156-60-5	TRANS-1,2-DICHLOROETHENE		ND	5.
109-99-9	TETRAHYDROFURAN		ND	5.
75-69-4	TRICHLOROFLUOROMETHANE		ND	5.
76-13-1	FREON-TF		ND	5.
106-93-4	ETHYLENE DIBROMIDE		ND	5.
123-91-1	1,4-DIOXANE		ND	5.
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE		ND	5.
67-66-3	CHLOROFORM		ND	5.
107-06-2	1,2-DICHLOROETHANE		ND	5.
78-93-3	2-BUTANONE		ND	50.
71-55-6	1,1,1-TRICHLOROETHANE		36.	5.
16-23-5	CARBON TETRACHLORIDE		ND	5.
108-05-4	VINYL ACETATE		ND	30.
75-27-4	BROMODICHLOROMETHANE		ND	5.
79-34-5	1,1,2,2-TETRACHLOROETHANE		ND	5.
78-87-5	1,2-DICHLOROPROPANE		ND	5.
10061-02-6	TRANS-1,3-DICHLOROPROPENE		ND	5.
79-01-6	TRICHLOROETHENE		ND	5.
124-48-1	DIBROMOCHLOROMETHANE		ND	5.
79-00-5	1,1,2-TRICHLOROETHANE		ND	5.
71-43-2	BENZENE		ND	5.
10061-01-5	CIS-1,3-DICHLOROPROPENE		ND	5.
110-75-8	2-CHLOROETHYLVINYL ETHER		ND	50.
75-25-2	BROMOFORM		ND	5.
119-78-6	2-HEXANONE		ND	30.
108-10-1	4-METHYL-2-PENTANONE		ND	30.
127-18-4	TETRACHLOROETHENE		ND	5.
108-88-3	TOLUENE		8.	5.

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: 17TB-3-3

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: 08/24/87 GCMS FILENAME: 6926V3 LEVEL: MATRIX: LOW SOIL DATE PREPARED: 09/01/87 09/01/87 DATE ANALYZED: STANDARD ID: **VOA397** INSTRUMENT ID: 5101

CAS #	COMPOUND	CONC:	UG/KG(PPB)	DETECTION LIMIT
108-90-7	CHLOROBENZENE		ND	5.
100-41-4	ETHYLBENZENE	•	ND	5.
100-42-5	STYRENE		ND	5.
95-47-6	TOTAL XYLENES		ND	5.
108-41-8	M-CHLOROTOLUENE		ND	5.
95-50-1	1,2-DICHLOROBENZENE		ND	5.
541-73-1	1,3-DICHLOROBENZENE		ND	5.
106-46-7	1.4-DICHLOROBENZENE		ND	5.

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: 17TB-3-3

TENTATIVELY IDENTIFIED COMPOUNDS

COMPOUND NAME FRACTION CONCENTRATION UG/KG(PPB)

1 NONE FOUND

VOA

CLIENT: WOODWARD-CLYDE

SITE: DOUGLAS AIRCRAFT

SAMPLE: 17TB-5-3

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: 08/24/87 GCMS FILENAME: 6926V4
LEVEL: LOW MATRIX: SOIL
DATE PREPARED: 09/01/87 DATE ANALYZED: 09/01/87

STANDARD ID: VOA397 DATE ANALYZED: 09/01/

CAS #	COMPOUND	CONC:	UG/KG(PPB)	DETECTION LIMIT
74-87-3	CHLOROMETHANE		ND	30.
74-83-9	BROMOMETHANE		ND	30.
75-01-4	VINYL CHLORIDE	•	ND	30.
75-00-3	CHLOROETHANE		ND	30.
75-09-2	METHYLENE CHLORIDE		ND	50.
67-64-1	ACETONE		ND	50.
107-02-8	ACROLEIN		ND	50.
107-13-1	ACRYLONITRILE		ND	50.
75-15-0	CARBON DISULFIDE		ND	5.
75-35-4	1,1-DICHLOROETHENE		ND	5.
75-34-3	1,1-DICHLOROETHANE		ND	5.
156-60-5	TRANS-1,2-DICHLOROETHENE		ND	5.
109-99-9	TETRAHYDROFURAN		ND	5.
75-69-4	TRICHLOROFLUOROMETHANE		ND	5.
76-13-1	FREON-TF		ND	5.
106-93-4	ETHYLENE DIBROMIDE		ND	5.
123-91-1	1,4-DIOXANE		14.	5.
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE		ND	5.
67-66-3	CHLOROFORM		ND	5.
107-06-2	1,2-DICHLOROETHANE		ND	5.
78-93-3	2-BUTANONE		ND	50.
71-55-6	1,1,1-TRICHLOROETHANE		13.	5.
16-23-5	CARBON TETRACHLORIDE		ND	5.
108-05-4	VINYL ACETATE		ND	30.
75-27-4	BROMODICHLOROMETHANE		ND	5.
79-34-5	1,1,2,2-TETRACHLOROETHANE		ND	5.
78-87 - 5	1,2-DICHLOROPROPANE		ND	5.
10061-02-6	TRANS-1,3-DICHLOROPROPENE		ND	5.
79-01-6	TRICHLOROETHENE		ND	5.
124-48-1	DIBROMOCHLOROMETHANE		ND	5.
79-00-5	1,1,2-TRICHLOROETHANE		ND	5.
71-43-2	BENZENE		ND	5.
10061-01-5	CIS-1,3-DICHLOROPROPENE		ND	5.
110-75-8	2-CHLOROETHYLVINYL ETHER		ND	50.
75-25-2	BROMOFORM		ND	5.
119-78-6	2-HEXANONE		ND	30.
108-10-1	4-METHYL-2-PENTANONE		ND	30.
127-18-4	TETRACHLOROETHENE		ND	5.
108-88-3	TOLUENE		7.	5.

CLIENT: WOODWARD-CLYDE

SITE: DOUGLAS AIRCRAFT SAMPLE: 17TB-5-3

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: 08/24/87 GCMS FILENAME: 6926V4
LEVEL: LOW MATRIX: SOIL

DATE PREPARED: 09/01/87 DATE ANALYZED: 09/01/87 STANDARD ID: VOA397 INSTRUMENT ID: 5101

CAS #	COMPOUND	conc:	UG/KG(PPB)	DETECTION LIMIT
108-90-7	CHLOROBENZENE		ир 	5.
100-41-4	ETHYLBENZENE		ND	5.
100-42-5	STYRENE		ND	5.
95-47-6	TOTAL XYLENES		ND	5.
108-41-8	M-CHLOROTOLUENE		ND	5.
95-50-1	1,2-DICHLOROBENZENE		ND	5.
541-73-1	1,3-DICHLOROBENZENE		ND	5.
106-46-7	1,4-DICHLOROBENZENE		ND	5.

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT SAMPLE: 17TB-5-3

TENTATIVELY IDENTIFIED COMPOUNDS

FRACTION CONCENTRATION COMPOUND NAME UG/KG(PPB) VOA 600. 1 1,3-DIOXOLANE

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: 17TB-7-3

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: 08/24/87 GCMS FILENAME: 6926V11
LEVEL: MEDIUM MATRIX: SOIL
DATE PREPARED: 09/01/87 DATE ANALYZED: 09/01/87
STANDARD ID: VOA397 INSTRUMENT ID: 5101

SAMPLE AMOUNT: 1.0G:1ML,200UL:1ML,5

CAS #	COMPOUND	CONC:	UG/G(PPM)	DETECTION LIMIT
74-87-3	CHLOROMETHANE		ND	30.
74-83-9	BROMOMETHANE		ND	30.
75-01-4	VINYL CHLORIDE		ИD	30.
75-00-3	CHLOROETHANE		ND	30.
75-09-2	METHYLENE CHLORIDE		ND	50.
67-64-1	ACETONE		ND	50.
107-02-8	ACROLEIN		ND	50.
107-13-1	ACRYLONITRILE		ND	50.
75-15-0	CARBON DISULFIDE		ND	5.
75-35-4	1,1-DICHLOROETHENE		ND	5.
75-34-3	1,1-DICHLOROETHANE		ND	5.
156-60-5	TRANS-1,2-DICHLOROETHENE		ND	5.
109-99-9	TETRAHYDROFURAN		ND	5.
75-69-4	TRICHLOROFLUOROMETHANE		ND	5.
76-13-1	FREON-TF		ND	5.
106-93-4	ETHYLENE DIBROMIDE		ND	5.
123-91-1	1,4-DIOXANE		ND	5.
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE		ND	5.
67-66-3	CHLOROFORM		ND	5.
107-06-2	1,2-DICHLOROETHANE		ND	5.
78-93-3	2-BUTANONE		810.	50.
71-55-6	1,1,1-TRICHLOROETHANE		ND	5.
16-23-5	CARBON TETRACHLORIDE		ND	5. .
108-05-4	VINYL ACETATE		ND	30.
75-27-4	BROMODICHLOROMETHANE		ND	5.
79-34-5	1,1,2,2-TETRACHLOROETHANE		ND	5.
78-87-5	1,2-DICHLOROPROPANE		ND	5.
10061-02-6	TRANS-1,3-DICHLOROPROPENE		ND	5.
79-01-6	TRICHLOROETHENE		ND	5.
124-48-1	DIBROMOCHLOROMETHANE		ND	5.
79-00-5	1,1,2-TRICHLOROETHANE		ND	5.
71-43-2	BENZENE		ND	5.
10061-01-5	CIS-1,3-DICHLOROPROPENE		ND	5.
110-75-8	2-CHLOROETHYLVINYL ETHER		ND	50.
75-25-2	BROMOFORM		ND	5.
119-78-6	2-HEXANONE		ND	30.
108-10-1	4-METHYL-2-PENTANONE		840.	30.
127-18-4	TETRACHLOROETHENE		ND	5.
108-88-3	TOLUENE		ND	5.

CLIENT:

WOODWARD-CLYDE

SITE:

DOUGLAS AIRCRAFT

SAMPLE: 17TB-7-3

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED:

08/24/87

GCMS FILENAME:

6926V11

LEVEL:

MEDIUM

MATRIX:

SOIL

DATE PREPARED:

09/01/87

DATE ANALYZED:

09/01/87

STANDARD ID:

VOA397

INSTRUMENT ID: 5101

SAMPLE AMOUNT:

1.0G:1ML,200UL:1ML,5

CAS #	COMPOUND	CONC:	UG/G(PPM)	DETECTION LIMIT
108-90-7	CHLOROBENZENE .		ND	5.
100-41-4	ETHYLBENZENE		ND	5.
100-42-5	STYRENE		ND	5.
95-47-6	TOTAL XYLENES		ND	5.
108-41-8	M-CHLOROTOLUENE		ND	5.
95-50-1	1,2-DICHLOROBENZENE		ND	5.
541-73-1	1,3-DICHLOROBENZENE		ND	5.
106-46-7	1,4-DICHLOROBENZENE		ND	5.

CLIENT: WOODWARD-CLYDE

SITE:

DOUGLAS AIRCRAFT

SAMPLE: 17TB-7-3

TENTATIVELY IDENTIFIED COMPOUNDS

COMPOUND NAME

FRACTION CONCENTRATION

UG/G(PPM)

1 NONE FOUND

VOA

Data Reporting Qualifiers

- Value If the result is a value greater than or equal to the Detection Limit (DL), the value is reported.
- ND Indicates that the compound was analyzed for but not detected. The minimum DL for the sample with the ND is reported based on necessary concentration or dilution actions.
- TR Indicates an estimated value. This flag is used when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the specified DL but greater than zero.

Woodward-Clyde Consultants



CHAIN OF CUSTODY RECORD

SHIPMENT NO.: 3

PAGE 1 OF Z
DATE 8 1247 87

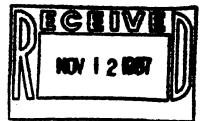
PROJECT NAME: DOVILLES AIR COAFT

87418670- 6000

* Note - This does not constitute authorization to proceed with analysis

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November 10, 1987



WOODWARD-CLYDE 203 N. Golden Circle Drive Santa Ana, CA 92705

Attn: Allistair Callendar

JOB NO. 7592



LABORATORY REPORT

Samples Received: Twenty-five (25) soil & four (4) water samples

Date Received: 10-29-87

Released for Analysis: 11-4-87

Purchase Order No: Proj: 8741863D-1000/Douglas Aircraft

The samples were analyzed as follows:

Samples Analyzed

Analysis

Results

MW-3-2-3 & MW-3-3-3

Volatile Organics

by EPA 8240

Data Sheets

Page 1 of 1

huch I Shit-Michael Shelton

Senior Chemist

D.J. Northington, Ph.D.

Technical Director

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: MW-3-2-3

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: 10/29/87 7592V1 GCMS FILENAME: LEVEL: LOW SOIL MATRIX: DATE PREPARED: DATE ANALYZED: 11/10/87 11/10/87 STANDARD ID: **VOA607** INSTRUMENT ID: 5100

CAS #	COMPOUND	CONC:	UG/KG(PPB)	DETECTION LIMIT
74-87-3	CHLOROMETHANE		ND	30.
74-83-9	BROMOMETHANE		ND	30.
75-01-4	VINYL CHLORIDE		ND	30.
75-00-3	CHLOROETHANE		ND	30.
75-09-2	METHYLENE CHLORIDE		ND	50.
67-64-1	ACETONE		ND	50.
107-02-8	ACROLEIN		ND	5 0.
107-13-1	ACRYLONITRILE		ND	50.
75-15-0	CARBON DISULFIDE		ND	5.
75-35-4	1,1-DICHLOROETHENE		53.	5.
75-34-3	1,1-DICHLOROETHANE		98.	5.
156-60-5	TRANS-1,2-DICHLOROETHENE		ND	5.
109-99-9	TETRAHYDROFURAN		ND	5.
75-69-4	TRICHLOROFLUOROMETHANE		ND	5.
76-13-1	FREON-TF		ND	5.
106-93-4	ETHYLENE DIBROMIDE		ND	5.
123-91-1	1,4-DIOXANE		ND	5.
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE		ND	5.
67-66-3	CHLOROFORM		ND	5.
107-06-2	1,2-DICHLOROETHANE		ND	5.
78-93-3	2-BUTANONE		ND	5 0.
71-55-6	1,1,1-TRICHLOROETHANE		70.	5.
16-23-5	CARBON TETRACHLORIDE		ND	5.
108-05-4	VINYL ACETATE		ND	3 0.
75-27-4	BROMODICHLOROMETHANE		ND	5.
79-34-5	1,1,2,2-TETRACHLOROETHANE		ND	5.
78-87-5	1,2-DICHLOROPROPANE		ND	5.
10061-02-6	TRANS-1,3-DICHLOROPROPENE		ND	5.
79-01-6	TRICHLOROETHENE		ND	5.
124-48-1	CHLORODIBROMOMETHANE		ND	5.
79-00-5	1,1,2-TRICHLOROETHANE		ND	5.
71-43-2	BENZENE		ND	5.
10061-01-5	CIS-1,3-DICHLOROPROPENE		ND	5.
110-75-8	2-CHLOROETHYLVINYLETHER		ND	50.
75-25-2	BROMOFORM		ND	5.
119-78-6	2-HEXANONE		ND	30.
108-10-1	4-METHYL-2-PENTANONE		ND	30.
127-18-4	TETRACHLOROETHENE		ND	5.
108-88-3	TOLUENE		590.	5.

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: MW-3-2-3

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: 10/29/87 GCMS FILENAME: 7592V1 LEVEL: LOW MATRIX: SOIL DATE PREPARED: 11/10/87 11/10/87 DATE ANALYZED: STANDARD ID: **VOA607** INSTRUMENT ID: 5100

CAS #	COMPOUND	conc:	UG/KG(PPB)	DETECTION LIMIT
108-90-7	CHLOROBENZENE		ND	5.
100-41-4	ETHYLBENZENE		ND	5.
100-42-5	STYRENE		ND	5.
95-47-6	TOTAL XYLENES		ND	5.
108-41-8	M-CHLOROTOLUENE		ND	5.
541-73-1	1,3-DICHLOROBENZENE		ND	5.
106-46-7	1,4-DICHLOROBENZENE		ND	5.
95-50-1	1.2-DICHLOROBENZENE		ND	5.

CLIENT: WOODWARD-CLYDE

SITE: DOUGLAS AIRCRAFT

SAMPLE: MW-3-2-3

TENTATIVELY IDENTIFIED COMPOUNDS

COMPOUND NAME

FRACTION CONCENTRATION

UG/KG(PPB)

1 NONE FOUND

VOA

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: MW-3-3-3

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: 10/29/87 GCMS FILENAME: 7592V2 LEVEL: LOW SOIL MATRIX: DATE PREPARED: 11/10/87 11/10/87 DATE ANALYZED: STANDARD ID: VOA607 INSTRUMENT ID: 5100

CAS #	COMPOUND	CONC:	UG/KG(PPB)	DETECTION LIMIT
74-87-3	CHLOROMETHANE		ND	30.
74-83-9	BROMOMETHANE		ND	30.
75-01-4	VINYL CHLORIDE		ND	30.
75-00-3	CHLOROETHANE		ND	30.
75-09-2	METHYLENE CHLORIDE		ND	50.
67-64-1	ACETONE		ND	50.
107-02-8	ACROLEIN		ND	50.
107-13-1	ACRYLONITRILE		ND	50.
75-15-0	CARBON DISULFIDE		ND	5.
75-35-4	1,1-DICHLOROETHENE		ND	5.
75-34-3	1,1-DICHLOROETHANE		ND	5.
156-60-5	TRANS-1,2-DICHLOROETHENE		ND	5.
109-99-9	TETRAHYDROFURAN		ND	5.
75-69-4	TRICHLOROFLUOROMETHANE		ND	5.
76-13-1	FREON-TF		ND	5.
106-93-4	ETHYLENE DIBROMIDE		ND	5.
123-91-1	1,4-DIOXANE		ND	5.
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE		ND	5.
67-66-3	CHLOROFORM		ND	5.
107-06-2	1,2-DICHLOROETHANE		ND	5.
78-93-3	2-BUTANONE		ND	50.
71-55-6	1,1,1-TRICHLOROETHANE		ND	5.
16-23-5	CARBON TETRACHLORIDE		ND	5.
108-05-4	VINYL ACETATE		ND	30.
75-27-4	BROMODICHLOROMETHANE		ND	5.
79-34-5	1,1,2,2-TETRACHLOROETHANE		ND	5.
78-87-5	1,2-DICHLOROPROPANE		ND	5.
10061-02-6	TRANS-1,3-DICHLOROPROPENE		ND	5.
79-01-6	TRICHLOROETHENE		ND	5.
124-48-1	CHLORODIBROMOMETHANE		ND	5.
79-00-5	1,1,2-TRICHLOROETHANE		ND	5.
71-43-2	BENZENE		ND	5.
10061-01-5	CIS-1,3-DICHLOROPROPENE		ND	5.
110-75-8	2-CHLOROETHYLVINYLETHER		ND	50.
75-25-2	BROMOFORM		ND	5.
119-78-6	2-HEXANONE		ND	30.
108-10-1	4-METHYL-2-PENTANONE		310.	30.
127-18-4	TETRACHLOROETHENE		ND	5.
108-88-3	TOLUENE		8.	5.

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: MW-3-3-3

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: GCMS FILENAME: 10/29/87 7592V2 LEVEL: LOW MATRIX: SOIL DATE PREPARED: 11/10/87 DATE ANALYZED: 11/10/87 STANDARD ID: **VOA607** INSTRUMENT ID: 5100

CAS #	COMPOUND	CONC:	UG/KG(PPB)	DETECTION LIMIT
108-90-7	CHLOROBENZENE		ND	5.
100-41-4	ETHYLBENZENE		ND	5.
100-42-5	STYRENE		ND	5.
95-47-6	TOTAL XYLENES		ND	5.
108-41-8	M-CHLOROTOLUENE		ND	5.
541-73-1	1,3-DICHLOROBENZENE		ND	5.
106-46-7	1,4-DICHLOROBENZENE		ND	5.
95-50-1	1,2-DICHLOROBENZENE	•	ND	5.

CLIENT: WOODWARD-CLYDE

SITE: DOUGLAS AIRCRAFT

SAMPLE: MW-3-3-3

TENTATIVELY IDENTIFIED COMPOUNDS

COMPOUND NAME

FRACTION CONCENTRATION

UG/KG(PPB)

1 NONE FOUND

VOA

Data Reporting Qualifiers

- Value If the result is a value greater than or equal to the Detection Limit (DL), the value is reported.
- ND Indicates that the compound was analyzed for but not detected. The minimum DL for the sample with the ND is reported based on necessary concentration or dilution actions.
- TR Indicates an estimated value. This flag is used when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the specified DL but greater than zero.

	Type	of Sample	74/8630	Туре	of Preservation	Analysis Required*
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